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TECHNISCHE FAKULTÄT

Institut für Informatik

Institut für Informatik > Informatik II > Research > Activities > Graph Petri-Nets

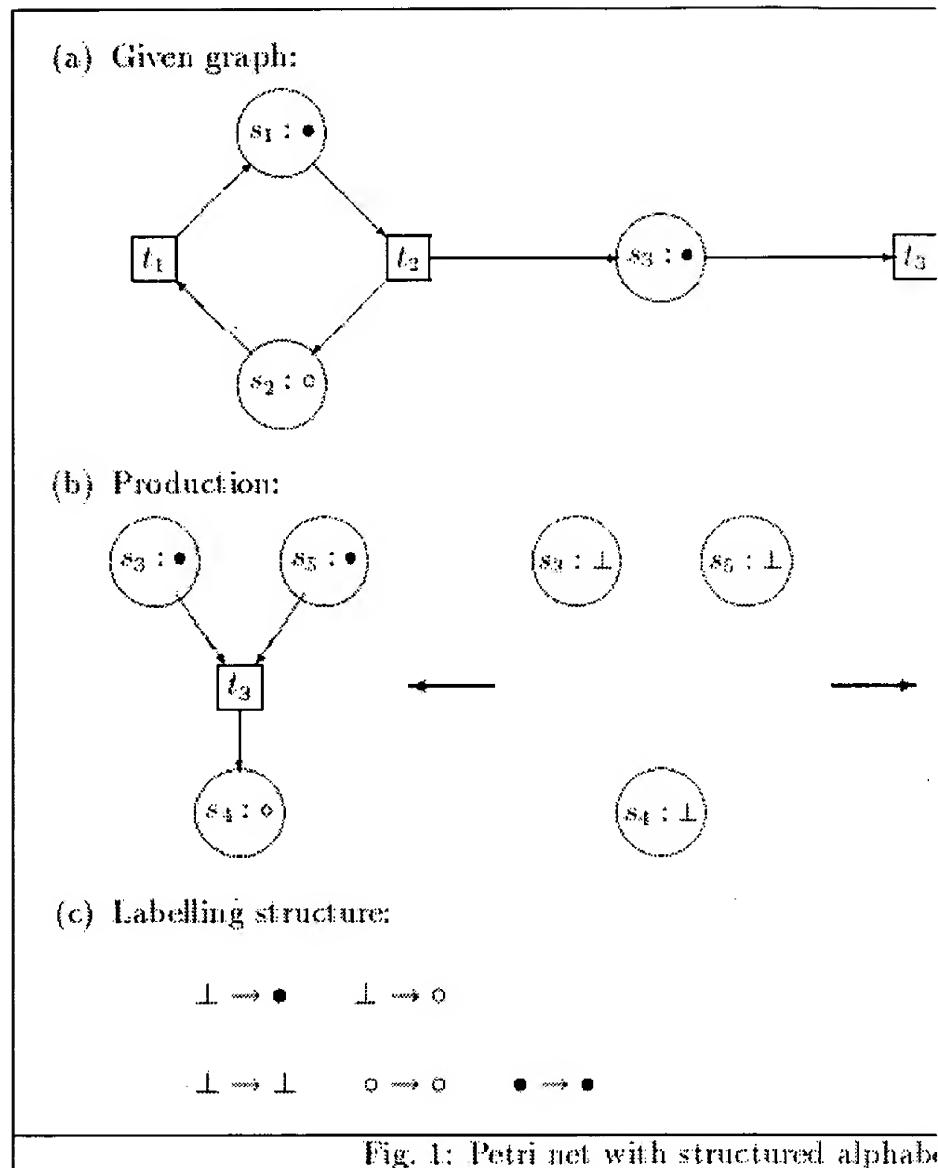


Lehrstuhl für Informatik II

Introduction
Petri-Nets
Event Structures
Actors and Linda
Conclusion

Petri nets

The first who discussed the relationship between graph grammars and Petri nets was W. E. Weil (Lect. Notes Comp. Sc. 73 (1979), pp. 456–463.) His approach is based on graph grammars. A production is associated with each transition, and this production defines the conditions under which the transition is allowed to fire. On the left-hand side of a production, there are places with variables and on the right-hand side with simple arithmetic expressions. The number of tokens in a place determines whether a production can be applied or not. If a production is applied, the number of tokens in the places on the left-hand side is decreased by the number of tokens produced on the right-hand side. A similar approach, but using a different graph-theoretic framework, was given by H. J. Kreowski (Lect. Notes Comp. Sc. 100 (1979), pp. 306–317). His main idea is to represent the tokens within a place as nodes and new edges; these edges are connected to the node representing the place. This approach is able to handle both places with bounded and places with unbounded capacities. It can easily be extended to individual tokens.



The idea depicted in Fig. 1 uses a structured alphabet and is due Lect. Notes Comp. Sc. 291 (1987), pp. 496-514. The structure of change node (and edge) labels: The gluing nodes are labelled with the alphabet; thus, we can map the gluing graph both into the left-right-hand side of the production since we can map a place labelled with \circ as well as to a place labelled with \bullet . If we restrict to morphisms, we are sure that different places in the production are mapped to different places in the gluing graph or in the derived one. The well-known gluing condition, typical approach, plays an important role: it ensures that there are no places in the gluing graph which are not included in the production. The gluing condition guarantees that no context graph can exist.

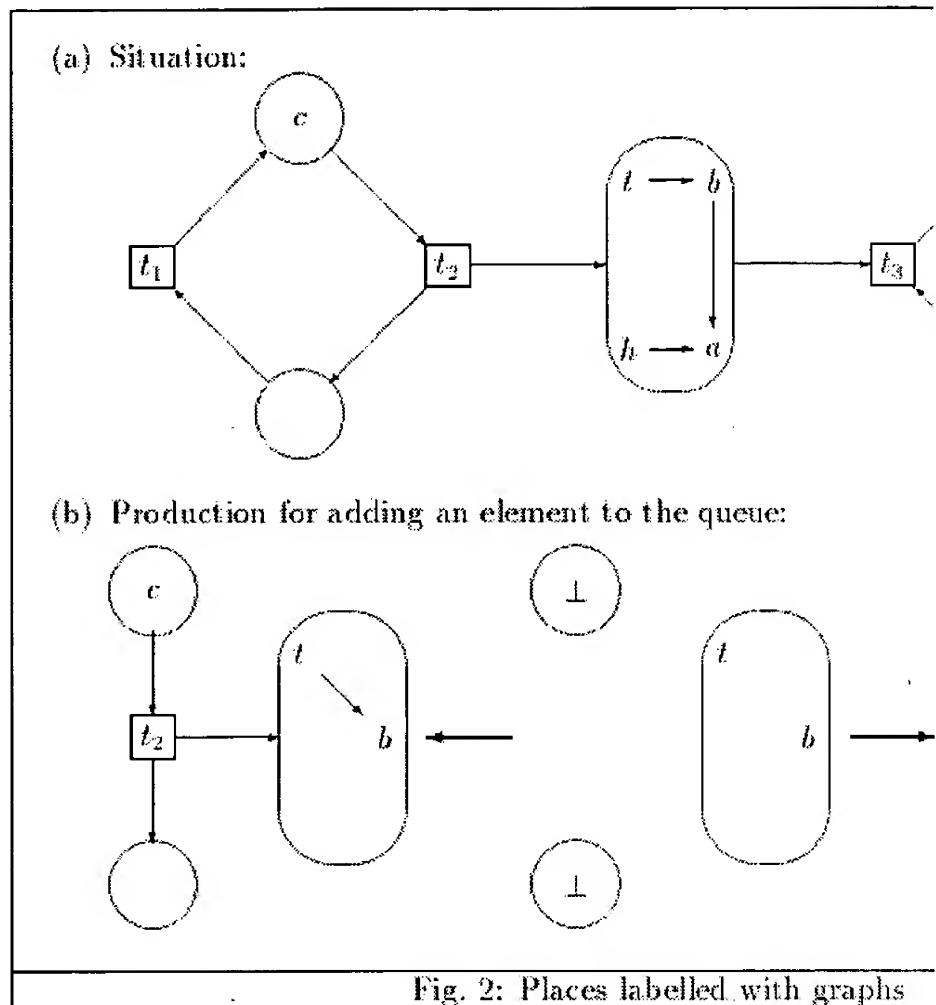


Fig. 2: Places labelled with graphs

This idea can also be used to handle Petri nets with multiple and case, we use multisets as labels and the multiset inclusion as the The bottom element is the empty set. A further step is to allow art the places. Fig. 2 shows an example using graphs as labels. A nc another node if there exists a morphism from its label to the label show (Theoret. Comp. Sc. 109 (1993), pp. 257-274) that the label can be found as colimits of the original labels. If we restrict the un to injections, the resulting labels are pushout objects again. The fi structure of a producer-consumer system with an unbounded buff buffer is represented by a chain of nodes the head and the tail ele by a ``pointer'' h and t , resp.

[Impressum](#)

[Impressum](#)



STIC EIC 2100 109757 Search Request Form (24)

Today's Date:

12/4/2003

What date would you like to use to limit the search?

Priority Date: 12/23/2003 Other:

Name James Tang

Format for Search Results (Circle One):

AU 2122 Examiner # 79879

PAPER DISK EMAIL

Room # 5C18 Phone 305-4866

Where have you searched so far?

Serial # 09/886459

USP DWPI EPO JPO ACM IBM TDB

IEEE INSPEC SPI Other

Is this a "Fast & Focused" Search Request? (Circle One) YES NO

A "Fast & Focused" Search is completed in 2-3 hours (maximum). The search must be on a very specific topic and meet certain criteria. The criteria are posted in EIC2100 and on the EIC2100 NPL Web Page at <http://ptoweb/patents/stic/stic-ic2100.htm>.

What is the topic, novelty, motivation, utility, or other specific details defining the desired focus of this search? Please include the concepts, synonyms, keywords, acronyms, definitions, strategies, and anything else that helps to describe the topic. Please attach a copy of the abstract, background, brief summary, pertinent claims and any citations of relevant art you have found.

static control graph with conjunctive node, disjunctive node and edge.
claims 15-25. regarding modifying graph , selecting node, check for redundant adding node to graph.

STIC Searcher Tereese Estupeld Phone 308-7796
Date picked up 12/4/03 1:15 pm Date Completed



1/5/1 (Item 1 from file: 349)
DIALOG(R) File 349:PCT FULLTEXT
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00867266 **Image available**

STATIC DEBUGGING TECHNIQUES FOR COORDINATION-CENTRIC SOFTWARE SYSTEMS
TECHNIQUES DE MISE AU POINT STATIQUE POUR SYSTEMES LOGICIELS A COORDINATION
CENTRIQUE

Patent Applicant/Assignee:

CONSYSTANT DESIGN TECHNOLOGIES INC, 4055 Lake Washington Boulevard NE,
Suite 200, Kirkland, WA 98033, US, US (Residence), US (Nationality),
(For all designated states except: US)

Patent Applicant/Inventor:

HINES Kenneth J, 313 166th Place SE, Bothell, WA 98012, US, US
(Residence), US (Nationality), (Designated only for: US)

Legal Representative:

MUNSON Steven J (agent), Stoel Rives LLP, 900 SW Fifth, Suite 2600,
Portland, OR 97204, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200201359 A2-A3 20020103 (WO 0201359)

Application: WO 2001US20031 20010622 (PCT/WO US0120031)

Priority Application: US 2000213496 20000623

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ
DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ
LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG
SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM

Main International Patent Class: G06F-011/36

Publication Language: English

Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 34628

English Abstract

Systemwide control aspects of a software system can be graphically-represented by a static control graph (SCG). A simple SCG typically has, the following: conjunctive nodes, each representing a control constraint; disjunctive nodes, each representing a mode within a component; and directed edges, each representing implication between a pair of nodes. Dynamic control graphs (DCGs) further have actions nodes, each representing an action that only responds to and generates control events, and lend themselves to a wider variety of dynamic checks and to model checking through conversion to Binary Decision Diagrams (BDDs) as well. Control dataflow graphs (CDGs) further have dataflow nodes, each representing a dataflow interaction of the software system and can be used to schedule components within the software system.

French Abstract

Dans cette invention, on peut representer graphiquement des aspects de commande a l'echelle du systeme d'un systeme logiciel par un graphe de commande statique (SCG). Un graphe SCG simple comporte generalement des noeuds conjonctifs, representant chacun une contrainte de commande; des noeuds disjonctifs, representant chacun un mode dans un composant; et des bords orientes, representant chacun une implication entre une paire de noeuds. Par ailleurs, les graphes de commande dynamique (DCG) comportent des noeuds d'actions, representant chacun une action qui se limite a repondre et a generer des evenements de commande, et qui se pretent a une plus grande variete de verifications dynamiques et a la verification de modeles via la conversion en diagrammes de decision binaire (BDD). De plus, les graphes de controle de flux de donnees (CDG) comportent des noeuds de flux de donnees, representant chacun une interaction de flux de donnees du systeme logiciel, et pouvant etre utilises pour organiser les

composants dans le système logiciel.
Legal Status (Type, Date, Text)

Publication 20020103 A2 Without international search report and to be republished upon receipt of that report.

Search Rpt 20020718 Late publication of international search report
Republication 20020718 A3 With international search report.

Republication 20020718 A3 Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

Examination 20021121 Request for preliminary examination prior to end of 19th month from priority date

Examination 20030703 Request for preliminary examination prior to end of 19th month from priority date

1/5/2 (Item 1 from file: 350)

DIALOG(R) File 350:Derwent WPIX
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015067460 **Image available**

WPI Acc No: 2003-127976/200312

Related WPI Acc No: 2002-139981; 2002-147921; 2002-164449; 2002-171591;
2002-471127; 2002-489540; 2003-220236; 2003-341873; 2003-391852;
2003-661093

XRPX Acc No: N03-101587

Data structure for software systems, has conjunctive and disjunctive nodes connected by directed edges which represent implication between nodes

Patent Assignee: HINES K J (HINE-I)

Inventor: HINES K J

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20020087953	A1	20020704	US 2000213496	P	20000623	200312 B
			US 2001886459	A	20010620	

Priority Applications (No Type Date): US 2000213496 P 20000623; US 2001886459 A 20010620

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020087953	A1	91		G06F-009/44	Provisional application US 2000213496

Abstract (Basic): US 20020087953 A1

NOVELTY - The data structure comprises conjunctive nodes which represent conjunctive boolean guard on state changes within software system and disjunctive nodes which represent boolean guard on a functional object within the software element. The conjunctive and disjunctive nodes are connected by corresponding directed edges which represent implication between the two nodes.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

- (1) Static control graph modification method; and
- (2) Static control graph creation method.

USE - For identifying control constraint conflicts in coordination-centric software system.

ADVANTAGE - Enables simple checking of a component against the protocol. Ensures accurate identification of control constraint conflicts.

DESCRIPTION OF DRAWING(S) - The figure shows the static control graph with stable and non-conflicting stages.

pp; 91 DwgNo 55/57

Title Terms: DATA; STRUCTURE; SOFTWARE; SYSTEM; CONJUNCTION; DISJUNCTION; NODE; CONNECT; DIRECT; EDGE; REPRESENT; IMPLICATION; NODE

Derwent Class: T01

International Patent Class (Main): G06F-009/44

File Segment: EPI

1/5/3 (Item 2 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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014319279 **Image available**

WPI Acc No: 2002-139981/200218

Related WPI Acc No: 2002-147921; 2002-164449; 2002-171591; 2002-471127;
2002-489540; 2003-127976; 2003-220236; 2003-341873; 2003-391852;
2003-661093

XRPX Acc No: N02-105476

Data structure for software system, stores data about graph containing sets of conjunctive nodes, disjunctive nodes and directed edges respectively

Patent Assignee: CONSYSTANT DESIGN TECHNOLOGIES INC (CONS-N)

Inventor: HINES K J

Number of Countries: 095 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200201359	A2	20020103	WO 2001US20031	A	20010622	200218	B
AU 200170094	A	20020108	AU 200170094	A	20010622	200235	
EP 1297424	A2	20030402	EP 2001948638	A	20010622	200325	
			WO 2001US20031	A	20010622		

Priority Applications (No Type Date): US 2000213496 P 20000623

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200201359	A2	E	170	G06F-011/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200170094 A G06F-011/00 Based on patent WO 200201359

EP 1297424 A2 E G06F-011/00 Based on patent WO 200201359

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

Abstract (Basic): WO 200201359 A

NOVELTY - A data structure stores data about a graph containing sets of conjunctive nodes (5304, 5306), disjunctive nodes and directed edges (5300, 5302) respectively. The conjunctive nodes represent conjunctive Boolean guard on state changes in software units. The disjunctive nodes represent Boolean guard on functional objects in the software units. The edges connect and represent implication between the nodes.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following

- (a) Software analysis tool;
- (b) Static control graph modification method;
- (c) Static control graph creation method;
- (d) Static error checking system;
- (e) Control graph conversion method;
- (f) Bit vector

USE - Data structure for checking static errors such as configuration reachability for software system, embedded system, distributed system.

ADVANTAGE - Checking errors are performed reliably, and size of program storing the checking process is also reduced.

DESCRIPTION OF DRAWING(S) - The figure shows a static control graph of the data in the data structure.

Directed edges 5300, 5302

Conjunctive nodes 5304, 5306

Dwg. 53/75

Title Terms: DATA; STRUCTURE; SOFTWARE; SYSTEM; STORAGE; DATA; GRAPH;
CONTAIN; SET; CONJUNCTION; NODE; DISJUNCTION; NODE; DIRECT; EDGE;

RESPECTIVE
Derwent Class: T01
International Patent Class (Main): G06F-011/00
File Segment: EPI

Set	Items	Description
S1	154	PETRI()NET? OR PETRINET OR (PREDICATE OR TRANSITION)()NETS OR EVENT()GRAPH()MODULE? OR MARKED()GRAPH? OR STOCHASTIC()EVE- NT()GRAPH? OR EVENT()GRAPH?
S2	35856	(CONJUNCTIVE OR CONNECT? OR JOIN? OR UNITE?) (2N) (TREE? OR - BRANCH? OR LEAF OR LEAVES OR DIRECTOR? OR NODE?)
S3	3917	(DISJUNCTIVE OR SEPARATE? OR DIVIDE? OR "NOT"() (CONNECT? OR JOIN? OR UNITE?)) (2N) (TREE? OR BRANCH? OR LEAF OR LEAVES OR - DIRECTOR? OR NODE?)
S4	2079201	MODIF? OR EDIT? OR REVIS? OR REVAMP? OR REWRIT? OR REWORK? OR CHANG? OR ALTER?
S5	0	S1 AND S2 AND S3 AND S4
S6	34	S1 AND S4
S7	0	S1 AND S2 AND S3
S8	528	S2 AND S3
S9	77	S8 AND S4
S10	0	S1 AND S2 AND S4
S11	3	S1 AND S2
S12	0	S1 AND S3
S13	114	S6 OR S9 OR S11
S14	37	S13 AND IC=G06F?

File 347:JAPIO Oct 1976-2003/Aug(Updated 031202)
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File 350:Derwent WPIX 1963-2003/UD,UM &UP=200378
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14/5/1 (Item 1 from file: 347)
DIALOG(R) File 347:JAPIO
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07123389 **Image available**
PREDICTIVE SYSTEM AND METHOD AND RECORDING MEDIUM

PUB. NO.: 2001-351057 [JP 2001351057 A]
PUBLISHED: December 21, 2001 (20011221)
INVENTOR(s): CHIKAMOTO TOSHINORI
YANAGIDA KATSUMI
ARAI KAZUHIKO
APPLICANT(s): KAJIMA CORP
APPL. NO.: 2000-170203 [JP 2000170203]
FILED: June 07, 2000 (20000607)
INTL CLASS: G06F-019/00 ; G06F-017/60

ABSTRACT

PROBLEM TO BE SOLVED: To provide a predictive system, a predictive method and a recording medium for grasping a process which may lead to dangerous work in working as the chain of **changes** in a time series working procedure or in working environment, time-sequentially analyzing the causal relation of these **changes** and predicting the dangerous work.

SOLUTION: The decomposition of a working procedure to be analyzed and the arrangement of the sequences are performed (step 101), the causes of a disaster are extracted, the causal relation of these causes is arranged (step 102), the working processes are connected with the causes of the disaster (step 103), and the connected state is expressed by a **Petri net** (step 104). Simulation concerned with the work is performed by using the **Petri net** (step 106), a working method, a working environment or the like is improved (step 108) and the processing is repeated until prescribed safety is satisfied.

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14/5/2 (Item 2 from file: 347)
DIALOG(R) File 347:JAPIO
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06823276 **Image available**
TRAFFIC NETWORK ROUTE SEARCHING METHOD AND DEVICE THEREOF

PUB. NO.: 2001-050770 [JP 2001050770 A]
PUBLISHED: February 23, 2001 (20010223)
INVENTOR(s): ONISHI KEISUKE
KIKUCHI ARATA
APPLICANT(s): ONISHI NETSUGAKU CO LTD
APPL. NO.: 11-228863 [JP 99228863]
FILED: August 12, 1999 (19990812)
INTL CLASS: G01C-021/00; G06F-017/00

ABSTRACT

PROBLEM TO BE SOLVED: To efficiently search by giving a number to the node of each mesh formed by dividing a traffic network, giving adjoining mesh joint data to the node on a compartment side, and again searching for the route of the node shown by the joint data when the node **changed** to a permanent label is on the compartment side.

SOLUTION: A traffic network is mesh-likely **divided**, and a **node** is let correspond to a specific point. A line **connecting** the **nodes** is expressed as a link, and when the link exceeds a mesh boundary, a node is set on the mesh compartment side and a number is given to each mesh. As to the node on a compartment side, adjoining mesh joint data given to the node on the compartment side of adjoining meshes is given. When a node **changed** to a permanent label is a node on a compartment side during processing

route search by a label ascertaining method, for the nodes shown by the joint data, route search process is added again to be performed. In the joint data, it is described that which nodes of which meshes are the same.

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14/5/3 (Item 3 from file: 347)

DIALOG(R)File 347:JAPIO

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06526857 **Image available**

BATTERY SWITCHING CIRCUIT

PUB. NO.: 2000-112577 [JP 2000112577 A]

PUBLISHED: April 21, 2000 (20000421)

INVENTOR(s): ODAOHARA SHIGEFUMI

FUKUSHIMA AKIRA

KOBAYASHI MASAKI

APPLICANT(s): INTERNATL. BUSINESS MACH CORP (IBM).

APPL. NO.: 10-269454 [JP 98269454]

FILED: September 24, 1998 (19980924)

INTL CLASS: G06F-001/26 ; G01K-007/24; G06F-001/00 ; G06F-001/30 ; H02J-007/00; H03K-017/08; H03K-017/24

ABSTRACT

PROBLEM TO BE SOLVED: To prevent the occurrence of abnormality in a battery switching circuit and to secure the safety of a system by arranging a temperature sensing means in the vicinity of a change-over switch, and when the switch temperature exceeds a prescribed temperature, interrupting the switching circuit.

SOLUTION: The circuit is constituted so as to connect the gate electrodes of respective FETs1 to 4 to 1st and 2nd series circuits 10, 20 in order to switch 1st and 2nd battery packs 30, 34. A temperature sensor 50 is arranged in the vicinities of these FETs 1 to 4 and a node G is connected to ground so as to control the switching of the FETs1 to 4. When the temperature of the sensor 50 is increased, its resistance value is increased and a transistor(TR) TR5 is conducted. Therefore the collector of the TR TR5 is turned to low potential and its gate electrode is turned to a non-conductive state. Thus the node G is separated from the ground, the FETs1 to 4 are turned off and all batteries are separated. A level applied to an FET5 shuts down the system as a shut-down signal.

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DIALOG(R)File 347:JAPIO

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05716839 **Image available**

SUPERVISORY CONTROL SYSTEM OF LINE

PUB. NO.: 09-331639 [JP 9331639 A]

PUBLISHED: December 22, 1997 (19971222)

INVENTOR(s): NAKAHARA FUMIO

APPLICANT(s): MEIDENSHA CORP [000610] (A Japanese Company or Corporation), JP (Japan)

APPL. NO.: 08-146851 [JP 96146851]

FILED: June 10, 1996 (19960610)

INTL CLASS: [6] H02J-013/00; G05B-009/02; G05B-023/02; G06F-009/44

JAPIO CLASS: 43.3 (ELECTRIC POWER -- Transmission & Distribution); 22.3 (MACHINERY -- Control & Regulation); 45.1 (INFORMATION PROCESSING -- Arithmetic Sequence Units)

ABSTRACT

PROBLEM TO BE SOLVED: To surely and easily extract formation of software

for accident detection and accident processing, by describing the time series state of line with **Petri net**, and judging accident by software formed by its object programming.

SOLUTION: A circular mark represents a place of a **Petri net**, and shows the state **change** (event) of an installed equipment and a protective relay and, in general, the state of time series of system. When a black dot is added to the circular mark, it means a state of its time sequence. When the black dot is not present, it means that it is not a state of its time sequence. A square indication representing a transaction of the **Petri net** exists at the tip of an arrow mark outgoing from the circular mark. When black dots are added to circular marks existing at the bases of all arrow marks pointing to the square mark, the black dots are erased and a process written by the square is executed, and black dots are added to the circular marks to which arrow marks are pointed from the square.

14/5/5 (Item 5 from file: 347)

DIALOG(R) File 347:JAPIO

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05350256 **Image available**

DEVICE FOR PREPARING WORK PLAN AND ITS METHOD

PUB. NO.: 08-305756 [JP 8305756 A]

PUBLISHED: November 22, 1996 (19961122)

INVENTOR(s): UEKI YOSHIKAZU

NAGASHIMA SHIRO

APPLICANT(s): FUJITSU LTD [000522] (A Japanese Company or Corporation), JP
(Japan)

APPL. NO.: 07-106377 [JP 95106377]

FILED: April 28, 1995 (19950428)

INTL CLASS: [6] G06F-017/60 ; G06F-009/06

JAPIO CLASS: 45.4 (INFORMATION PROCESSING -- Computer Applications); 36.1
(LABOR SAVING DEVICES -- Industrial Robots); 45.1
(INFORMATION PROCESSING -- Arithmetic Sequence Units)

ABSTRACT

PURPOSE: To surely and easily verify a work plan by simultaneously preparing a work flow chart and its operation describing language and simultaneously executing simulation and execution.

CONSTITUTION: This work plan preparing device is constituted of an input means 12, an information processor 13, an output means 14, a robot 15, and a robot control device 16. The processor 13 has functions for **Petri net** edition 13a, **Petri net** operation describing language edition 13b, operation describing language translation 13c, and **Petri net** execution 13d, edits and outputs a work plan inputted by the means 12 and simulates the work plan by an instruction inputted from the means 12. Then, the device prepares a work flow chart corresponding to the work plan and prepares operation describing language corresponding to the prepared work flow chart. Thereby, the work flow chart prepared simultaneously with the work plan and the operation describing language corresponding to the work flow chart can be simultaneously checked.

14/5/6 (Item 6 from file: 347)

DIALOG(R) File 347:JAPIO

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05211487 **Image available**

SCENARIO EDITING DEVICE

PUB. NO.: 08-166987 [JP 8166987 A]

PUBLISHED: June 25, 1996 (19960625)

INVENTOR(s): HARADA HIROAKI

APPLICANT(s): NEC CORP [000423] (A Japanese Company or Corporation), JP
(Japan)

APPL. NO.: 06-308793 [JP 94308793]

FILED: December 1, 1994 (19941213)
INTL CLASS: [6] G06F-017/60 ; G06F-009/06
JAPIO CLASS: 45.4 (INFORMATION PROCESSING -- Computer Applications); 45.1
(INFORMATION PROCESSING -- Arithmetic Sequence Units)

ABSTRACT

PURPOSE: To easily produce a scenario in which exhibition order, exhibition timing, exhibition position and exhibition size at the time of exhibiting plural multimedia data and state transition corresponding to an event, etc., are described.

CONSTITUTION: The screen layout and the attribute of each media data inputted by an editor by using an input managing part 12 are stored in a media data managing part 14, and simultaneously, the information of the media data to be exhibited in each exhibition state is stored in a state data managing part 13. The transition and a flow are produced on the basis of these information, and a Petri net scenario is produced and stored in a transition managing part 15 and a flow managing part 16.

14/5/7 (Item 7 from file: 347)

DIALOG(R) File 347:JAPIO
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05099730 **Image available**

METHOD FOR SUPPORTING UNDERSTANDING OF DESIGN PROCEDURE OF SOFTWARE DRAWING AND DEVICE THEREFOR

PUB. NO.: 08-055230 [JP 8055230 A]
PUBLISHED: February 27, 1996 (19960227)
INVENTOR(s): ADACHI TARO
KATO YASUTO
HIGASHIDA MASAHIRO
APPLICANT(s): PFU LTD [366680] (A Japanese Company or Corporation), JP
(Japan)
APPL. NO.: 06-190274 [JP 94190274]
FILED: August 12, 1994 (19940812)
INTL CLASS: [6] G06T-011/80; G06F-017/50
JAPIO CLASS: 45.9 (INFORMATION PROCESSING -- Other); 45.4 (INFORMATION PROCESSING -- Computer Applications)

ABSTRACT

PURPOSE: To improve operation efficiency when an optional user reviews, maintains, and reuses an optional generated software drawing and to improve the quality of the software after the operation.

CONSTITUTION: A design history information generation means 1 functions to generate design history information corresponding to the procedure of input operation when the software drawing is generated by a series of input operations of an input means 2 such as a mouse and then store it in a storage means. A design history information utilizing means 5 supports the understanding of the software drawing by displaying or printing the order relation of the input operations based on the design history information and further functions to alter the contents of the design history information and partially alter the mode wherein the order relation of the input operations is displayed or printed. Further, a Petri net is used as the representation format of the design history information.

14/5/8 (Item 8 from file: 347)

DIALOG(R) File 347:JAPIO
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04594517 **Image available**

WORK PLAN DETERMINING SYSTEM

PUB. NO.: 06-266417 [JP 6266417 A]

PUBLISHED: September 2, 1994 (19940922)
INVENTOR(s): WATANABE AKIRA
MATSUMOTO KOTARO
NAGASHIMA SHIRO
UCHIYAMA TAKASHI
INAMOTO YASUSHI
NAKAMURA YOSHITERU
APPLICANT(s): NATL AEROSPACE LAB [350275] (A Japanese Government or Municipal Agency), JP (Japan)
FUJITSU LTD [000522] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 05-050305 [JP 9350305]
FILED: March 11, 1993 (19930311)
INTL CLASS: [5] G05B-019/05; **G06F-015/21**
JAPIO CLASS: 22.3 (MACHINERY -- Control & Regulation); 34.1 (SPACE DEVELOPMENT -- Spacecraft); 45.4 (INFORMATION PROCESSING -- Computer Applications)
JAPIO KEYWORD: R011 (LIQUID CRYSTALS)
JOURNAL: Section: P, Section No. 1846, Vol. 18, No. 674, Pg. 164, December 19, 1994 (19941219)

ABSTRACT

PURPOSE: To easily tabulate SOE(Sequence Of Events) on the basis of a casual relation of each work, with regard to the work plan determining system of a system.

CONSTITUTION: A generating/ **editing** means 1 generates a **Petri Net** by a command from an operator and stores it in a storage means 2. Also, at need, according to a command from the operator, the **Petri Net** stored in the storage means 2 is read in and **edited**. An analyzing means 3 executes a net contraction by applying a net contraction rule to the **Petri Net** stored in the storage means 2, and also, executes an analytic processing such as reachable tree generation and deadlock verification, etc. A data conversion output means 4 allows the **Petri Net** stored in the storage means 2 to be subjected to data conversion to SOE, and outputs it to a display device 110 or a printer 120 as necessary. A simulation means 5 executes a plotting display by simulation onto the display device with respect to the **Petri Net** stored in the storage means 2.

14/5/9 (Item 9 from file: 347)
DIALOG(R) File 347:JAPIO
(c) 2003 JPO & JAPIO. All rts. reserv.

04505875 **Image available**
SIMULATION DEVICE BASED UPON **PETRI NET**

PUB. NO.: 06-149775 [JP 6149775 A]
PUBLISHED: May 31, 1994 (19940531)
INVENTOR(s): SUZUKI NORITOSHI
APPLICANT(s): FUJI XEROX CO LTD [359761] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 04-315815 [JP 92315815]
FILED: October 30, 1992 (19921030)
INTL CLASS: [5] **G06F-015/20**
JAPIO CLASS: 45.4 (INFORMATION PROCESSING -- Computer Applications)
JOURNAL: Section: P, Section No. 1793, Vol. 18, No. 460, Pg. 146, August 26, 1994 (19940826)

ABSTRACT

PURPOSE: To set conditions of respective elements for plural simulation operations temporarily at a time by the simulation device based upon the **Petri net** so as to simulate a production system, etc.

CONSTITUTION: In the simulation device based upon the **Petri net**, plural simulation condition setting means 2-1 for setting the conditions of plural simulation operations temporarily at a time and storage means 3 and 7 for

storing plural conditions are provided. Prior to plural simulation operations, the conditions of all the simulation operations can temporarily be set at a time, so the setting operation is not troublesome and missetting due to misstorage are reduced. Further, an icon changing means 2-2 is provided and icons of elements after the conditions for the simulation operations are sets are changed into icons different from the same kind of elements whose conditions are not set. Consequently, which element plural conditions are set to is easily and visually decided.

14/5/10 (Item 10 from file: 347)
DIALOG(R) File 347:JAPIO
(c) 2003 JPO & JAPIO. All rts. reserv.

04480388 **Image available**
SIMULATION DEVICE BASED ON PETRINET

PUB. NO.: 06-124288 [JP 6124288 A]
PUBLISHED: May 06, 1994 (19940506)
INVENTOR(s): SUZUKI NORITOSHI
APPLICANT(s): FUJI XEROX CO LTD [359761] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 04-300385 [JP 92300385]
FILED: October 13, 1992 (19921013)
INTL CLASS: [5] G06F-015/21 ; B23Q-041/08
JAPIO CLASS: 45.4 (INFORMATION PROCESSING -- Computer Applications); 25.2 (MACHINE TOOLS -- Cutting & Grinding)
JOURNAL: Section: P, Section No. 1781, Vol. 18, No. 417, Pg. 84, August 04, 1994 (19940804)

ABSTRACT

PURPOSE: To easily verify a simulation model in a simulation device based on a Petrinet for the simulation of a production system.

CONSTITUTION: A central processor 1 in the simulation device based on the Petrinet is newly equipped with a token behavior animation means 2-1 which displays the movement of a token by an animation by using an icon, and an element state monitoring means 2-2 which displays the state change of the prescribed attribute of a place or transition. Thus, at the time of operating the debug of the simulation model, the state change of the behavior and element of the token can be displayed in a visually understandable form in a real time, so that the debug can be attained in a short period of time without requiring a skill.

14/5/11 (Item 11 from file: 347)
DIALOG(R) File 347:JAPIO
(c) 2003 JPO & JAPIO. All rts. reserv.

04241890 **Image available**
PRODUCTION SYSTEM SIMULATOR DEVICE USING PETRI NET

PUB. NO.: 05-233590 [JP 5233590 A]
PUBLISHED: September 10, 1993 (19930910)
INVENTOR(s): ARAKI MITSUHIKO
TAMAOKI HISASHI
HORISAWA AKEMASA
YOSHIKAWA NORIO
APPLICANT(s): ARAKI MITSUHIKO [000000] (An Individual), JP (Japan)
OMRON CORP [000294] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 04-033625 [JP 9233625]
FILED: February 20, 1992 (19920220)
INTL CLASS: [5] G06F-015/20 ; B23Q-041/08; G06F-015/21
JAPIO CLASS: 45.4 (INFORMATION PROCESSING -- Computer Applications); 25.2 (MACHINE TOOLS -- Cutting & Grinding)
JOURNAL: Section: P, Section No. 1663, Vol. 17, No. 692, Pg. 140,

December 1993 (19931217)

ABSTRACT

PURPOSE: To immediately and efficiently **change** a product to be produced, trouble like a fault of a machine, and addition/reduction of buffers and to perform simulation in the time direction opposite to the production progress from arrangement and the time of a certain token.

CONSTITUTION: A data input part 1 takes in data for modeling of a production system and outputs data of each product data, machine data, buffer data, etc., and a model constituting part 2 generates a **Petri net** model for each of these data and combines **Petri net** models for respective data to constitute a **Petri net** model of the production system. Therefore, the **Petri net** for data corresponding to the **change** is only replaced to **change** the model of the production system in the case of the **change** of the product, the machine, or buffers.

14/5/12 (Item 12 from file: 347)

DIALOG(R) File 347:JAPIO

(c) 2003 JPO & JAPIO. All rts. reserv.

03765854 **Image available**

SIMULATION DEVICE BASED UPON PETRI NET

PUB. NO.: 04-130954 [JP 4130954 A]

PUBLISHED: May 01, 1992 (19920501)

INVENTOR(s): YOSHIOKA TAKESHI

AKANE KAZUMI

SON MASAHIRO

APPLICANT(s): FUJI XEROX CO LTD [359761] (A Japanese Company or Corporation), JP (Japan)

APPL. NO.: 02-252967 [JP 90252967]

FILED: September 21, 1990 (19900921)

INTL CLASS: [5] G06F-015/20 ; G05B-015/02

JAPIO CLASS: 45.4 (INFORMATION PROCESSING -- Computer Applications); 22.3 (MACHINERY -- Control & Regulation)

JOURNAL: Section: P, Section No. 1408, Vol. 16, No. 398, Pg. 18, August 24, 1992 (19920824)

ABSTRACT

PURPOSE: To enable a user to remark a specific element even in the case of using the model of a large scale system and to effectively and rapidly execute the inspection and correction of the model by setting up a brake point in a **Petri net** element.

CONSTITUTION: Prior to the execution of simulation, a simulation parameter setting means 104 sets up respective parameters for regulating a brake point for temporarily stopping the simulation at a required position and a simulation managing means 106 manages the set information. At the time of executing the simulation, a simulation executing means 105 executes the discrete event simulation of the described model based upon the set parameters and a display means 102 displays the executed result. When the simulation executing position arrives at the brake point, the execution of the simulation is temporarily aborted. The **change** of an event on the brake point setting position can be visually displayed, so that the inspection and correction of the model can rapidly be executed.

14/5/13 (Item 13 from file: 347)

DIALOG(R) File 347:JAPIO

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03044464 **Image available**

STATE ANALYSIS PROCESSING SYSTEM

PUB. NO.: 02-019964 [JP 2019964 A]

PUBLISHED: January 22, 1990 (19900123)
INVENTOR(s): NAKAJIMA ATSUSHI
OISHI KAZUHIRO
YOSHIDA HIROYUKI
APPLICANT(s): FUJITSU LTD [000522] (A Japanese Company or Corporation), JP
(Japan)
APPL. NO.: 63-170372 [JP 88170372]
FILED: July 08, 1988 (19880708)
INTL CLASS: [5] G06F-015/21
JAPIO CLASS: 45.4 (INFORMATION PROCESSING -- Computer Applications)
JOURNAL: Section: P, Section No. 1030, Vol. 14, No. 165, Pg. 17, March
30, 1990 (19900330)

ABSTRACT

PURPOSE: To realize the analysis of an effective state by preparing a state expressing part and a state analyzing part and analyzing the state transition in terms of probability.

CONSTITUTION: A state expressing part 11 includes a **petri - net** 14 consisting of a system state expressing part 15 and a system state **change** expressing part 16, a probability-based state **change** expressing part 17 which shows the probability of each state and transition, a threshold value setting part 18 which shows the threshold value that decides whether the state is ignited or not, and an unfixed value setting part 19 which can express the threshold value related to the ignition or the probability of the state transition as the unknown value as long as they are not known. While a state analyzing part 12 includes a state probability analyzing part 20 which calculates the probability of each state, a sort analyzing part 21 which sorts the cases when the unfixed value is described, and an ignition analyzing part 22 which analyzes the possibility of ignition based on the threshold value. As a result, the state transition can be estimated and at the same time the quantitative analysis can be performed.

14/5/14 (Item 14 from file: 347)
DIALOG(R) File 347:JAPIO
(c) 2003 JPO & JAPIO. All rts. reserv.

02325380 **Image available**
DRAWING EDITING SYSTEM ACCORDING TO GRAPHIC CONSTRUCTION

PUB. NO.: 62-242280 [JP 62242280 A]
PUBLISHED: October 22, 1987 (19871022)
INVENTOR(s): HORIKAWA HIROSHI
SUHARA NORIHIKO
APPLICANT(s): MITSUBISHI ELECTRIC CORP [000601] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 61-085612 [JP 8685612]
FILED: April 14, 1986 (19860414)
INTL CLASS: [4] G06F-015/62
JAPIO CLASS: 45.4 (INFORMATION PROCESSING -- Computer Applications)
JOURNAL: Section: P, Section No. 687, Vol. 12, No. 112, Pg. 158, April 09, 1988 (19880409)

ABSTRACT

PURPOSE: To obtain a drawing **editing** system capable of processing the plural types of the drawings by using a graphic definition file corresponding to the type of the processed drawing at the time of displaying the drawing.

CONSTITUTION: The drawing **editing** system 10 is provided with the graphic definition file 2 of a PERT drawing, the graphic definition file 3 of a **Petri net**, the graphic definition file 4 of a SADT drawing and a central processing unit 8 and a drawing **editing** part 7 forms the drawing based on an **editing** instruction inputted from an input device 6 and stores the drawing in a drawing file 1. When the graphic construction is the same irrespective of the type of the drawing, information held by the

drawing file 1 is the same. A drawing display part 5 inputs the designated graphic definition files 2-4, and displays the drawing on a display device 9 based on the contents of the drawing file 1. As the graphic definition file, the graphic definition file for the type of the graphic such as the block interaction diaphragm of SDL may be used.

14/5/15 (Item 15 from file: 347)
DIALOG(R) File 347:JAPIO
(c) 2003 JPO & JAPIO. All rts. reserv.

02115657 **Image available**
COMMUNICATION PROTOCOL CONVERTER

PUB. NO.: 62-032557 [JP 62032557 A]
PUBLISHED: February 12, 1987 (19870212)
INVENTOR(s): ARIYOSHI KAZUO
APPLICANT(s): MITSUBISHI ELECTRIC CORP [000601] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 60-173013 [JP 85173013]
FILED: August 06, 1985 (19850806)
INTL CLASS: [4] G06F-013/00 ; G06F-015/00 ; H04L-013/00
JAPIO CLASS: 45.2 (INFORMATION PROCESSING -- Memory Units); 44.3 (COMMUNICATION -- Telegraphy); 45.4 (INFORMATION PROCESSING -- Computer Applications)
JOURNAL: Section: P, Section No. 594, Vol. 11, No. 211, Pg. 130, July 09, 1987 (19870709)

ABSTRACT

PURPOSE: To simplify a job by inputting a communication protocol expressed by a Petri net language, by using an interaction input/output device, generating a Petri net data by using a Petri net language processor, and generating a communication protocol converting program from the Petri net data of two kinds of communication protocols which have been inputted.

CONSTITUTION: An operator 22 inputs a communication protocol 13 which has been expressed by a Petri net language, to a protocol converter 14 by using an interaction input/output device 15. This input is edited by a Petri net editor 16 and stored in a Petri net data file 19. Next, the contents of the Petri net data file 19 are translated to an execution object program by a Petri net language processor 8, and stored in a file 20. In order to execute a protocol conversion between two communication protocols, a protocol conversion processor 18 reads out an execution object program of two communication protocols from the file 20 and executes its coupling and editing .

14/5/18 (Item 3 from file: 350)
DIALOG(R) File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

015067460 **Image available**
WPI Acc No: 2003-127976/200312
Related WPI Acc No: 2002-139981; 2002-147921; 2002-164449; 2002-171591;
2002-471127; 2002-489540; 2003-220236; 2003-341873; 2003-391852;
2003-661093
XRPX Acc No: N03-101587

Data structure for software systems, has conjunctive and disjunctive nodes connected by directed edges which represent implication between nodes
Patent Assignee: HINES K J (HINE-I)
Inventor: HINES K J
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20020087953	A1	20020704	US 2000213496	P	20000623	200312 B

Priority Applications (No Type Date): US 2000213496 P 20000623; US 2001886459 A 20010620

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes
US 20020087953 A1 91 G06F-009/44 Provisional application US 2000213496

Abstract (Basic): US 20020087953 A1

NOVELTY - The data structure comprises **conjunctive nodes** which represent **conjunctive boolean guard** on state **changes** within software system and **disjunctive nodes** which represent boolean guard on a functional object within the software element. The **conjunctive** and **disjunctive nodes** are **connected** by corresponding directed edges which represent implication between the two nodes.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

- (1) Static control graph **modification** method; and
- (2) Static control graph creation method.

USE - For identifying control constraint conflicts in coordination-centric software system.

ADVANTAGE - Enables simple checking of a component against the protocol. Ensures accurate identification of control constraint conflicts.

DESCRIPTION OF DRAWING(S) - The figure shows the static control graph with stable and non-conflicting stages.

pp; 91 DwgNo 55/57

Title Terms: DATA; STRUCTURE; SOFTWARE; SYSTEM; CONJUNCTION; DISJUNCTION; NODE; CONNECT; DIRECT; EDGE; REPRESENT; IMPLICATION; NODE

Derwent Class: T01

International Patent Class (Main): G06F-009/44

File Segment: EPI

14/5/19 (Item 4 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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014319279 **Image available**

WPI Acc No: 2002-139981/200218

Related WPI Acc No: 2002-147921; 2002-164449; 2002-171591; 2002-471127; 2002-489540; 2003-127976; 2003-220236; 2003-341873; 2003-391852; 2003-661093

XRPX Acc No: N02-105476

Data structure for software system, stores data about graph containing sets of conjunctive nodes, disjunctive nodes and directed edges respectively

Patent Assignee: CONSYSTANT DESIGN TECHNOLOGIES INC (CONS-N)

Inventor: HINES K J

Number of Countries: 095 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200201359	A2	20020103	WO 2001US20031	A	20010622	200218 B
AU 200170094	A	20020108	AU 200170094	A	20010622	200235
EP 1297424	A2	20030402	EP 2001948638	A	20010622	200325

WO 2001US20031 A 20010622

Priority Applications (No Type Date): US 2000213496 P 20000623

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200201359 A2 E 170 G06F-011/00

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200170094 A G06F-011/00 Based on patent WO 200201359
EP 1297424 A2 E G06F-011/00 Based on patent WO 200201359
Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
LI LT LU LV MC MK NL PT RO SE SI TR

Abstract (Basic): WO 200201359 A

NOVELTY - A data structure stores data about a graph containing sets of **conjunctive nodes** (5304, 5306), **disjunctive nodes** and directed edges (5300, 5302) respectively. The **conjunctive nodes** represent **conjunctive Boolean guard** on state **changes** in software units. The **disjunctive nodes** represent Boolean guard on functional objects in the software units. The edges connect and represent implication between the nodes.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following

- (a) Software analysis tool;
- (b) Static control graph **modification** method;
- (c) Static control graph creation method;
- (d) Static error checking system;
- (e) Control graph conversion method;
- (f) Bit vector

USE - Data structure for checking static errors such as configuration reachability for software system, embedded system, distributed system.

ADVANTAGE - Checking errors are performed reliably, and size of program storing the checking process is also reduced.

DESCRIPTION OF DRAWING(S) - The figure shows a static control graph of the data in the data structure.

Directed edges 5300, 5302

Conjunctive nodes 5304, 5306

Dwg. 53/75

Title Terms: DATA; STRUCTURE; SOFTWARE; SYSTEM; STORAGE; DATA; GRAPH;
CONTAIN; SET; CONJUNCTION; NODE; DISJUNCTION; NODE; DIRECT; EDGE;
RESPECTIVE

Derwent Class: T01

International Patent Class (Main): G06F-011/00

File Segment: EPI

14/5/20 (Item 5 from file: 350)

DIALOG(R) File 350:Derwent WPIX
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013871426

WPI Acc No: 2001-355638/200137

XRAM Acc No: C01-110308

Evaluating states of biological systems useful for interpreting data from, e.g. DNA chips or microarrays comprises constructing metabolic pathways and scoring molecules according to their expression level is useful to find new drug targets

Patent Assignee: GMD FORSCHUNGSZENTRUM INFORMATIONSTECHNI (GMDI-N);
FRAUNHOFER GES FOERDERUNG ANGEWANDTEN (FRAU)

Inventor: KUEFFNER R; ZIEN A; ZIMMER R

Number of Countries: 029 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200136658	A2	20010525	WO 2000EP111171	A	20001111	200137 B
EP 1158447	A1	20011128	EP 2000111352	A	20000526	200201
EP 1232280	A2	20020821	EP 2000976024	A	20001111	200262

Priority Applications (No Type Date): EP 2000111352 A 20000526; US 99164866
P 19991112

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
WO 200136658	A2 E	30	C12Q-001/00	

Designated States (National): CA JP US

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
EP 1158447 A1 E G06F-019/00
Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
EP 1232280 A2 E C12Q-001/00 Based on patent WO 200136658
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

Abstract (Basic): WO 200136658 A2

~~NOVELTY - Evaluating states of biological systems comprises constructing pathways and their interaction network, measuring expression data, and calculating a score based on quantification of the molecules in the system.~~

~~DETAILED DESCRIPTION - Evaluating states of biological systems comprises:~~

~~(a) constructing a pathway comprising at least two molecules and their interaction network;~~

~~(b) measuring expression data with an appropriate experiment and measuring device; and~~

~~(c) calculating a score for the pathway based on the experimental quantification of the amounts of molecules in the system, where the score indicates an intensity of realization of the pathway in the state of the biological system.~~

~~USE - To interpret data from large differential displays such as those generated using DNA chips or microarrays in order to elucidate metabolic pathways that are actually realized in vivo. The method can be used to identify pathways that are biologically realized or missing in a disease state (claimed) with the aim of identifying potential targets and thus drugs for treatment of the disease.~~

~~ADVANTAGE - Unlike prior art methods for interpreting large differential displays, the method does not rely on gene clustering according to expression time, where subsets do not generally represent whole pathways, and where significant subsets among groups with similar characteristics are not detected.~~

pp; 30 DwgNo 0/20

Title Terms: EVALUATE; STATE; BIOLOGICAL; SYSTEM; USEFUL; INTERPRETATION; DATA; DNA; CHIP; COMPRISE; CONSTRUCTION; METABOLISM; PATH; SCORE; MOLECULAR; ACCORD; EXPRESS; LEVEL; USEFUL; FINDER; NEW; DRUG; TARGET.

Derwent Class: B04; D16

International Patent Class (Main): C12Q-001/00; G06F-019/00

File Segment: CPI

14/5/21 (Item 6 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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012915252 **Image available**

WPI Acc No: 2000-087088/200007

Related WPI Acc No: 1997-289452; 1999-010148; 2003-299277; 2003-480358

XRPX Acc No: N00-068354

Client and server desktop combining system for client-server system

Patent Assignee: CITRIX SYSTEMS INC (CITR-N); DUURSMA M (DUUR-I); PANASYUK A (PANA-I)

Inventor: DUURSMA M; PANASYUK A

Number of Countries: 087 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9963430	A1	19991209	WO 99US11534	A	19990525	200007 B
AU 9943128	A	19991220	AU 9943128	A	19990525	200021
EP 1082653	A1	20010314	EP 99955340	A	19990525	200116
			WO 99US11534	A	19990525	
KR 2001052420	A	20010625	KR 2000713372	A	20001128	200173
US 20020057295	A1	20020516	US 9886898	A	19980529	200237
JP 2002517814	W	20020618	WO 99US11534	A	19990525	200242
			JP 2000552577	A	19990525	

US 6437803 B1 20020 US 9886898 A 1998052 200257
AU 764767 B 20030828 AU 9943128 A 19990525 200361

Priority Applications (No Type Date): US 9886898 A 19980529

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 9963430 A1 E 27 G06F-009/44

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW

AU 9943128 A Based on patent WO 9963430

EP 1082653 A1 E Based on patent WO 9963430

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

KR 2001052420 A G06F-015/16

US 20020057295 A1 G09G-005/00

JP 2002517814 W 35 G06F-015/00 Based on patent WO 9963430

US 6437803 B1 G09G-005/00

AU 764767 B G06F-009/44 Previous Publ. patent AU 9943128

Based on patent WO 9963430

Abstract (Basic): WO 9963430 A1

NOVELTY - The client node (40) monitors its desktop environment and transmits a message to server node (30) indicating **change** in desktop (14). The server node responds to received message by commanding client node to **modify** the representation of desktop as part of client desktop environment. Then, the server node transmits messages to client node indicating locally generated **change** to representation of desktop.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for method for incorporating windows from client desktop environment into server desktop environment.

USE - For client-server system for combining client and server desktop into single desktop environment.

ADVANTAGE - The current foreground window and the identity of the window last requested to be moved to the foreground are compared and if the match is found, the agent need not send information acknowledging the **change**.

DESCRIPTION OF DRAWING(S) - The figure shows functional block diagram of client **node connected to two separate server nodes**.

Desktop (14)

Server node (30)

Client node (40)

pp; 27 DwgNo 2/6

Title Terms: CLIENT; SERVE; COMBINATION; SYSTEM; CLIENT; SERVE; SYSTEM

Derwent Class: P85; T01

International Patent Class (Main): G06F-009/44 ; G06F-015/00 ;
G06F-015/16 ; G09G-005/00

International Patent Class (Additional): G06F-003/14 ; G06F-009/46

File Segment: EPI; EngPI

14/5/22 (Item 7 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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012908034 **Image available**

WPI Acc No: 2000-079870/200007

XRPX Acc No: N00-063135

Petri net implemented information flow and object modeling method in production line - involves performing modification to order maintained by transitions from virtual place depending on attribute of token

Patent Assignee: NIPPON STEEL CORP (YAWA)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 11328259	A	19991130	JP 98142327	A	19980508	200007 B

Priority Applications (No Type Date): JP 98142327 A 19980508

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 11328259	A	5	G06F-017/60	

Abstract (Basic): JP 11328259 A

NOVELTY - Order information of an object is processed as an attribute of a token (202) which connects **Petri net** model showing each actual processes to the star type centering around a virtual place (111). **Modification** is performed to the order maintained by the transitions (014,016,018,020) from the virtual place depending on the attribute of token.

USE - For modeling flow of information and object in production line.

ADVANTAGE - Reconstruction of model by **Petri net** is made simple, hence reduction of large work load is realized. DESCRIPTION OF DRAWING(S) - The figure shows **Petri net** model for modeling in production line. (014,016,018,020) Transitions; (111) Virtual place; (202) Token.

Dwg.1/6

Title Terms: PETRI; NET; IMPLEMENT; INFORMATION; FLOW; OBJECT; METHOD; PRODUCE; LINE; PERFORMANCE; MODIFIED ; ORDER; MAINTAIN; TRANSITION; VIRTUAL; PLACE; DEPEND; ATTRIBUTE; TOKEN

Derwent Class: T01

International Patent Class (Main): G06F-017/60

File Segment: EPI

14/5/23 (Item 8 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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012765522 **Image available**

WPI Acc No: 1999-571650/199948

XRPX Acc No: N99-421282

Method for programming scripts for directing system behavior

Patent Assignee: GENESYS TELECOM LAB INC (GENE-N)

Inventor: ANISIMOV N; KISHINSKY K

Number of Countries: 085 Number of Patents: 009

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9945716	A2	19990910	WO 99US4248	A	19990225	199948 B
AU 9928809	A	19990920	AU 9928809	A	19990225	200007
US 6067357	A	20000523	US 9836006	A	19980304	200032
EP 1066581	A2	20010110	EP 99909650	A	19990225	200103
			WO 99US4248	A	19990225	
US 6178239	B1	20010123	US 9836006	A	19980304	200107
			US 2000506113	A	20000217	
CN 1292127	A	20010418	CN 99803603	A	19990225	200141
JP 2002506332	W	20020226	WO 99US4248	A	19990225	200219
			JP 2000535155	A	19990225	
AU 743964	B	20020214	AU 9928809	A	19990225	200223
CA 2320945	C	20021126	CA 2320945	A	19990225	200305
			WO 99US4248	A	19990225	

Priority Applications (No Type Date): US 9836006 A 19980304; US 2000506113
A 20000217

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
WO 9945716	A2	E	35 H04Q-000/00	

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW
AU 9928809 A Based on patent WO 9945716
US 6067357 A H04M-003/523
EP 1066581 A2 E G06F-019/00 Based on patent WO 9945716
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
US 6178239 B1 H04M-003/523 Div ex application US 9836006
Div ex patent US 6067357
CN 1292127 A G06F-019/00
JP 2002506332 W 40 H04M-003/51 Based on patent WO 9945716
AU 743964 B G06F-019/00 Previous Publ. patent AU 9928809
Based on patent WO 9945716
CA 2320945 C E G06F-009/45 Based on patent WO 9945716

Abstract (Basic): WO 9945716 A2

NOVELTY - The method involves selecting **Petri Net** operator symbols in a graphic user interface (GUI) programmer/ **editor**, placing the symbols in a manner to create a **Petri Net** directed graph according to desired behavioral constraints for a portion of the system, and compiling an executable software module from the constraints represented by the generated **Petri Net** according to formality defined within the programmer/ **editor** for the directed graph.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for a graphical programmer/ **editor**, a method for providing call functions for a system, and a telephony call center.

USE - For programming scripts for directing system behavior e.g. used in telephony call centers.

ADVANTAGE - Reduces complexity and work load required to direct the activities of a call center. Provides flexibility and adaptability so that **changes** and adaptations can be easily and quickly made without fear of error. All contingencies are covered, and dead ends are only a remote possibility.

DESCRIPTION OF DRAWING(S) - The figure shows a topological representation of a call center.

pp; 35 DwgNo 1/6

Title Terms: METHOD; PROGRAM; DIRECT; SYSTEM; BEHAVE

Derwent Class: T01; W01

International Patent Class (Main): G06F-009/45 ; G06F-019/00 ; H04M-003/51; H04M-003/523; H04Q-000/00

International Patent Class (Additional): G05B-019/418; H04M-003/00; H04M-003/42; H04Q-003/545; H04Q-003/64

File Segment: EPI

14/5/24 (Item 9 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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012130173 **Image available**

WPI Acc No: 1998-547085/199847

XRPX Acc No: N98-426315

Simulation method using Petri - net theory - involves operating counter of processed token in place and changing conditions of attribute of processed object

Patent Assignee: TOSHIBA KK (TOKE)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 10240714	A	19980911	JP 9737628	A	19970221	199847 B

Priority Applications (No Type Date): JP 9737628 A 19970221

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 10240714	A	9	G06F-017/00	

Abstract (Basic): JP 10124110 A

The method involves passing a token (G), which expresses a processed object, to a simulation model which combined with a Petri - net symbol. The Petri - net symbol has a place (P20) for processing the processed object and performs simulation. A counter (i) which shows condition substitute of the attribute of the processed object is added to the token.

The counter of the processed token is operated in the place and the conditions of the attribute of the processed object is changed .

ADVANTAGE - Performs simulation using simulation model of simple expression.

Dwg.1/11

Title Terms: SIMULATE; METHOD; PETRI; NET; THEORY; OPERATE; COUNTER; PROCESS; TOKEN; PLACE; CHANGE ; CONDITION; ATTRIBUTE; PROCESS; OBJECT

Derwent Class: T01

International Patent Class (Main): G06F-017/00

File Segment: EPI

14/5/25 (Item 10 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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011921046 **Image available**

WPI Acc No: 1998-337956/199830

XRPX Acc No: N98-264160

Computerised control apparatus for automatic processing system of e.g. wafer polishing apparatus - uses programming language e.g. C language, in which sequence operation program of system is described and controlled, for applying Petri - net program

Patent Assignee: EBARA CORP (EBAR)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 10124110	A	19980515	JP 96298134	A	19961022	199830 B

Priority Applications (No Type Date): JP 96298134 A 19961022

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 10124110	A	8		G05B-015/02	

Abstract (Basic): JP 10124110 A

The apparatus includes a carrying-in opening which carries a workpiece to a system and takes it out from a lot unit. The processing condition of the workpiece is provided by an input device. The workpiece is transferred between several workpiece processors via a conveyor.

The sequence operation program of the system is described and controlled in a programming language e.g. C language applying a Petri - net program.

ADVANTAGE - Simplifies programming acquisition of sequence motion control, thereby apparatus can be operated even by person having no knowledge regarding software. Enables simple program modification . Processing contents can be varied for every workpiece. Utilises sequence motion control program having Petri - net program with high-versatility. Enables reduction of number of processes. Performs efficient maintenance service and programming since programming language is combined in Petri - net .

Dwg.1/5

Title Terms: COMPUTER; CONTROL; APPARATUS; AUTOMATIC; PROCESS; SYSTEM;

WAFER; POLISH; APPARATUS; PROGRAM; LANGUAGE; LANGUAGE; SEQUENCE; OPERATE; PROGRAM; SYSTEM; DESCRIBE; CONTROL; APPLY; PETRI; NET; PROGRAM

Derwent Class: T01; T06

International Patent Class (Main): G05B-015/02

International Patent Class (Additional): G06F-009/06

File Segment: EPI

14/5/26 (Item 11 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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010854791 **Image available**
WPI Acc No: 1996-351744/199635
XRPX Acc No: N96-296616

Scenario edit appts for multimedia data e.g moving image, audio, music, text, graphics - in which transition data and flow data are stored in transition management part and flow management part respectively after both data are created based on stored specific presentation state

Patent Assignee: NEC CORP (NIDE)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 8166987	A	19960625	JP 94308793	A	19941213	199635 B

Priority Applications (No Type Date): JP 94308793 A 19941213

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 8166987	A	8	G06F-017/60	

Abstract (Basic): JP 8166987 A

The appts has a media data management part (14) which stores the screen layout and the attribute of each media data. The screen layout of the media data at a predetermined time is changed into a specific presentation state which is stored in a state data management part (13).

A transition data and a flow data are created based on the stored information in order to form a petrinet by a first unit. The transition data and the flow data are stored in a transition management part (15) and the flow management part (16).

ADVANTAGE - Creates scenario by petrinet automatically. Carries out debug of parallel process and scenario state transition easily.

Dwg.13/19

Title Terms: EDIT ; APPARATUS; DATA; MOVE; IMAGE; AUDIO; MUSIC; TEXT; GRAPHIC; TRANSITION; DATA; FLOW; DATA; STORAGE; TRANSITION; MANAGEMENT; PART; FLOW; MANAGEMENT; PART; RESPECTIVE; AFTER; DATA; BASED; STORAGE; SPECIFIC; PRESENT; STATE

Derwent Class: T01

International Patent Class (Main): G06F-017/60

International Patent Class (Additional): G06F-009/06

File Segment: EPI

14/5/27 (Item 12 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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010550056 **Image available**
WPI Acc No: 1996-047009/199605
XRPX Acc No: N96-039500

Control code renewal method for multi-node computer system - renewing control code of each node of multi-node calculation system where continuous operation is possible even when node or several nodes are taken out of system, through combined functions of processor

Patent Assignee: IBM CORP (IBMC); INT BUSINESS MACHINES CORP (IBMC)

Inventor: BRADY J T; HO L Y; STEVENS C R; WANG D T; YEAGER J D

Number of Countries: 002 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 7311753	A	19951128	JP 95107474	A	19950501	199605 B
US 5649112	A	19970715	US 94241901	A	19940511	199734
			US 96593551	A	19960130	
JP 3177117	B2	20010618	JP 95107474	A	19950501	200136

Priority Applications (No Type Date): US 94241901 A 1994-11; US 96593551 A
19960130

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 7311753	A	11	G06F-015/177	
US 5649112	A	12	G06F-015/177	Cont of application US 94241901
JP 3177117	B2	11	G06F-015/177	Previous Publ. patent JP 7311753

Abstract (Basic): JP 7311753 A

The method involves renewing the control code of each node in a multi-node calculation system where continuous operation is possible even when a node or several nodes are taken out of the system.

Initially, a first **node** is **separated** from the calculation system. Then, the control codes of the remaining nodes are **revised** based on the function of a processor. The **revised** control codes are then introduced into the first node by a conversion program code module. The first **node** is **connected** back to the calculation system, and is then operated to communicate with a second node.

When the ECL value of the first node corresponds with the ECL value of the second node, communication is possible by using a first interface function. However, when the ECL values of the two nodes are not compatible, communication is possible by using a second interface function. By this, it enables calculation system motion while renewing the control codes.

ADVANTAGE - Enables communication between nodes with different control codes due to second interface function. Enables use of appts. in mobile multi-node system during orderly introduction processing.

Dwg.1/6

Title Terms: CONTROL; CODE; RENEW; METHOD; MULTI; NODE; COMPUTER; SYSTEM; RENEW; CONTROL; CODE; NODE; MULTI; NODE; CALCULATE; SYSTEM; CONTINUOUS; OPERATE; POSSIBILITY; EVEN; NODE; NODE; SYSTEM; THROUGH; COMBINATION; FUNCTION; PROCESSOR

Derwent Class: T01

International Patent Class (Main): G06F-015/177

International Patent Class (Additional): G06F-009/06 ; G06F-009/22 ;
G06F-013/00 ; G06F-013/42

File Segment: EPI

14/5/28 (Item 13 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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009596189 **Image available**

WPI Acc No: 1993-289736/199337

XRPX Acc No: N93-222836

Flexible communication architecture for motion control system e.g.
robotic system - includes centralised control node, distributed control
nodes, and smart I-O peripheral control nodes which may be readily
modified or expanded

Patent Assignee: PITNEY BOWES INC (PITB)

Inventor: DI GIULIO P C; LEE D K; RILEY D W; RYAN F W

Number of Countries: 006 Number of Patents: 007

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 560226	A2	19930915	EP 93103563	A	19930305	199337 B
CA 2091085	A	19930907	CA 2091085	A	19930305	199348
EP 560226	A3	19940105	EP 93103563	A	19930305	199516
US 5452419	A	19950919	US 92847542	A	19920306	199543
EP 560226	B1	19961009	EP 93103563	A	19930305	199645
DE 69305203	E	19961114	DE 605203	A	19930305	199651
			EP 93103563	A	19930305	
CA 2091085	C	19991019	CA 2091085	A	19930305	200009

Priority Applications (No Type Date): US 92847542 A 19920306

Cited Patents: -SR.Pub; 4.Jnl.Ref; EP 133567; AEP 200365; AEP 230116;
AEP 355042; YUS 4456956; AUS 4536838; AUS 4972313; OA 5.Jnl.Re; 00
US0483

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
EP 560226	A2	E	53 G05B-019/417	Designated States (Regional): DE FR GB IT
CA 2091085	C	E	H04L-012/40	
US 5452419	A		41 G06F-013/30	
EP 560226	B1	E	55 G05B-019/414	Designated States (Regional): DE FR GB IT
DE 69305203	E		G05B-019/414	Based on patent EP 560226
CA 2091085	A		H04L-012/40	
EP 560226	A3		G05B-019/417	

Abstract (Basic): EP 560226 A

The control system has a serial bus communicating with the central control node, the distributed control nodes and the peripheral control nodes. The serial bus allows communication of control signals and data signals between the central and peripheral control nodes and among the distributed control nodes and the central control node.

Each of the peripheral control nodes has an associated time slice interval with a length of one time slice unit. The intervals have a delay relative to the tick signal that is an integral number of one time slice units long. The peripheral node control signals that are associated with communications between the central and one of the peripheral control nodes are separated from each other by an integral number of tick intervals.

ADVANTAGE - Supports both real time highly periodic communications and event-driven peer-to-peer communications.

th

Dwg.1/38

Title Terms: FLEXIBLE; COMMUNICATE; ARCHITECTURE; MOTION; CONTROL; SYSTEM; ROBOT; SYSTEM; CENTRE; CONTROL; NODE; DISTRIBUTE; CONTROL; NODE; SMART; I-O; PERIPHERAL; CONTROL; NODE; READY; MODIFIED ; EXPAND

Derwent Class: T06; X22; X25

International Patent Class (Main): G05B-019/414; G05B-019/417; G06F-013/30 ; H04L-012/40

International Patent Class (Additional): G05B-019/403; G05B-019/418; G05D-003/20

File Segment: EPI

14/5/29 (Item 14 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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009479777

WPI Acc No: 1993-173312/199321

XRPX Acc No: N93-132877

Petri net approach to checking software structural change correctness in operation - using changed region analysis to identify parts still needing further checking using set of linear expressions in logic relationship

Patent Assignee: ANONYMOUS (ANON)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
RD 348009	A	19930410	RD 93348009	A	19930320	199321 B

Priority Applications (No Type Date): RD 93348009 A 19930320

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
RD 348009	A	1	G06F-000/00	

Abstract (Basic): RD 348009 A

Software systems have become indispensable in many areas and more software systems require dynamic change support that allows structural change on the system while in continuous operation. However, any dynamic change should not damage the system's

correctness. Deciding if a **change** should be granted and determining the states for a safe **change** are difficult but vital to assure the system's reliability.

A **Petri net** approach using the path property notion for software correctness checking is proposed. The path property notion can describe a system's dynamic aspects statically. It provides a set of linear expressions in logical relationships to overcome the difficulty of articulating and reasoning a dynamically **changing** system. By deploying a **change** decomposition strategy, a **change** session can be divided into a set of valid elementary **changes**.

It is discovered that only certain types of elementary **changes** have impact on the correctness of path property. For reducing the computational complexity of correctness checking, this research has developed a **Changed Region Analysis** technique to identify the necessary parts for further correctness checking.

USE- Correctness checking on dynamically **changing** software.

Dwg.0/0

Title Terms: PETRI; NET; APPROACH; CHECK; SOFTWARE; STRUCTURE; **CHANGE**; CORRECT; OPERATE; **CHANGE**; REGION; ANALYSE; IDENTIFY; PART; STILL; NEED; CHECK; SET; LINEAR; EXPRESS; LOGIC; RELATED

Derwent Class: T01

International Patent Class (Main): **G06F-000/00**

File Segment: EPI

14/5/30 (Item 15 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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009439420 **Image available**

WPI Acc No: 1993-132939/199316

XRPX Acc No: N93-101284

Petri network analysing circuit - has and-gates group output connected to comparison results register data input

Patent Assignee: YANKOVSKII A G (YANK-I)

Inventor: DOROSHENKO V V; PADERIN A V; YANKOVSKII A G

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 1735869	A2	19920523	SU 4855206	A	19900731	199316 B

Priority Applications (No Type Date): SU 4855206 A 19900731

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
SU 1735869	A2	9	G06F-015/347	Add to patent SU 1322312

Abstract (Basic): SU 1735869 A

The circuit as per Parent Cert. has been **modified** by additionally including fourth memory unit (15) second group of comparison circuits units (16-1....16.k) and a group of AND-gates (17.1...17.k) which enable extension of the area of use.

The fourth memory unit (15) enables analysis of the **Petri Network** by comparison using delaying arcs, i.e., storing data about inhibitor connections in the network. The AND-gates group (17) and second comparison circuits group (16) extend the logic of checking activity and actuations of network junctions - which in real terms relates to checks on zero marking of any position of the **Petri Network**.

Control signals from data synchronising unit (11), enable data from third memory unit (3) into matrix multiplier unit (8) for addition of result of products to marking value that is fed to registers unit (4). At each stage codes in register unit (4) are checked; if data exceeds zero the operating process continues. If the sequence of starting of the junctions equals zero, comparison unit (10) generates a signal inhibiting further operations.

USE - In computer engineering for analysing **Petri Networks** presented in matrix form. Bul.19/23.5.92

Dwg.5/7
Title Terms: PETRI; NETWORK; ANALYSE; CIRCUIT; AND-GATE; GROUP; OUTPUT;
CONNECT; COMPARE; RESULT; REGISTER; DATA; INPUT
Derwent Class: T01
International Patent Class (Main): G06F-015/347
International Patent Class (Additional): G06F-015/419
File Segment: EPI

14/5/31 (Item 16 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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009430699 **Image available**
WPI Acc No: 1993-124215/199315
XRPX Acc No: N93-094775
Petri network simulator - has recording flag input of first
comparison results register connected to input of delay element at
recording flag input to second register

Patent Assignee: AS UKR-POWER MODELLING INST (AUPO-R)

Inventor: DOROSHENKO V V

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 1709348	A1	19920130	SU 4804784	A	19900320	199315 B

Priority Applications (No Type Date): SU 4804784 A 19900320

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
SU 1709348	A1	9	G06F-015/419	

Abstract (Basic): SU 1709348 A

The simulating device contains three storage units (1-3), register unit (4), comparators gp. (5.1-5.K), comparison results registers (6.24), matrices subtraction unit (7), matrices multiplication unit (8), adders unit (9), comparison-to-zero unit (10), sync unit (11), data input (12), initial setting input (13), time selection unit (22), branching type attribute register (23) and delay element (26).

USE/ADVANTAGE - For simulating state space and state change function of complex systems on the basis of Petri networks. Wider functional scope by simulating time Petri networks. Bul.4/30.1.92.

Dwg.1/4

Title Terms: PETRI; NETWORK; SIMULATE; RECORD; FLAG; INPUT; FIRST; COMPARE;
RESULT; REGISTER; CONNECT; INPUT; DELAY; ELEMENT; RECORD; FLAG; INPUT;
SECOND; REGISTER

Derwent Class: T01

International Patent Class (Main): G06F-015/419

File Segment: EPI

14/5/32 (Item 17 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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009360910 **Image available**
WPI Acc No: 1993-054388/199307
XRPX Acc No: N93-041503

Aid design method for system of communicating robots - iterating design using petri net models of components that has components linked by communication network

Patent Assignee: ALCATEL NV (COGE); ALCATEL CIT SA (CITC); ALCATEL CIT (CITC)

Inventor: COLIN C; LOYER B

Number of Countries: 014 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 527664	A1	19930217	EP 92402016	A	19920710	199307 B

FR 2679398	A1	19930122	FR 918985	A	19910716	199312
CA 2073903	A	19930117	CA 2073903	A	19920715	199314
JP 5210491	A	19930820	JP 92189752	A	19920716	199338
US 5291427	A	19940301	US 92914115	A	19920715	199409
EP 527664	B1	19951220	EP 92402016	A	19920710	199604
DE 69206917	E	19960201	DE 606917	A	19920710	199610
			EP 92402016	A	19920710	199614
ES 2081068	T3	19960216	EP 92402016	A	19920710	199614

Priority Applications (No Type Date): FR 918985 A 19910716

Cited Patents: US 4354226; US 4876664; US 4998194

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
EP 527664	A1	F	20 G05B-019/05	
			Designated States (Regional): AT BE CH DE ES FR GB IT LI NL SE	
CA 2073903	A	F	H04Q-005/545	
US 5291427	A		6 G06G-007/48	
EP 527664	B1	F	23 G05B-019/05	
			Designated States (Regional): AT BE CH DE ES FR GB IT LI NL SE	
DE 69206917	E		G05B-019/05	Based on patent EP 527664
ES 2081068	T3		G05B-019/05	Based on patent EP 527664
FR 2679398	A1		H04L-012/00	
JP 5210491	A		G06F-009/06	

Abstract (Basic): EP 527664 A

The method involves providing a description of the **Petri net** modelling each function to a development system, which confirms that each initial network possesses the desired properties. The development system is then used to design a communication network, and test it for the desired properties. If these properties are not found the initial **Petri nets** are modified.

The communication network is then redesigned and retested, initiating a cycle of iterations until a correctly modelled set of communicating robot result.

USE/ADVANTAGE - For telecommunications switching. Simpler and more reliable design of communicating robots.

Dwg.1/10

Title Terms: AID; DESIGN; METHOD; SYSTEM; COMMUNICATE; ROBOT; DESIGN; PETRI ; NET; MODEL; COMPONENT; COMPONENT; LINK; COMMUNICATE; NETWORK

Derwent Class: T01; T06; W01; W05; X25

International Patent Class (Main): G05B-019/05; G06F-009/06 ; G06G-007/48; H04L-012/00; H04Q-005/545

International Patent Class (Additional): G06F-013/14 ; H04J-015/00; H04L-012/24; H04L-012/26; H04Q-011/04

File Segment: EPI

14/5/33 (Item 18 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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009296012 **Image available**

WPI Acc No: 1992-423422/199251

Related WPI Acc No: 1992-054722

XRPX Acc No: N92-323038

Petri network simulator of objects and processes - has flag output of counter transmission to consecutive vertex- branch connected to corresp. data input of multichannel delay unit

Patent Assignee: TAGANROG RADIO ENG INST (TAWI)

Inventor: KOSTYUSHKIN V N; LISITSA YU V

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 1711190	A2	19920207	SU 4769102	A	19891226	199251 B

Priority Applications (No Type Date): SU 4769102 A 19891226

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes
SU 1711190 A2 4 G06F-015/419 Add to patent SU 1633430

Abstract (Basic): SU 1711190 A

The simulating device, as per Parent Cert., for wider functional scope by simulating **Petri networks** with delay of counter transmission from the vertices, now contains multichannel delay unit (4). Before starting the operation, matrix elements values of input and output markings of branching vertices are applied to inputs (8,9). The initial marking of **Petri network** is applied to the input (10), and the channels of the accumulating summator (2) are put to the initial state, thus setting number of counters in each vertex corresp. to channel number. Counter time delays in vertices are set via the inputs (12), and the channels of the delay unit (4) set required delay time. Logical unity signal is applied to the start input (7), and the sync. unit (1) shapes at its outputs a signal train determined by operational time diagram of the sync. unit (1).

USE - For simulating objects and processes described by **Petri networks**. Bul.5/7.2.92.

Dwg.1/1

Title Terms: PETRI; NETWORK; SIMULATE; OBJECT; PROCESS; FLAG; OUTPUT; COUNTER; TRANSMISSION; CONSECUTIVE; VERTEX; BRANCH; CONNECT; CORRESPOND; DATA; INPUT; MULTICHANNEL; DELAY; UNIT

Derwent Class: T01

International Patent Class (Main): G06F-015/419

File Segment: EPI

14/5/34 (Item 19 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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007934135

WPI Acc No: 1989-199247/198927

XRPX Acc No: N89-152332

Petri network analysis circuit - has additional group of junction models with inputs connected to simple and inhibitor arcs

Patent Assignee: CHURKIN V N (CHUR-I)

Inventor: BORISOV A I; LASTOCHKIN M I

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 1432547	A	19881023	SU 4204221	A	19870227	198927 B

Priority Applications (No Type Date): SU 4204221 A 19870227

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes
SU 1432547 A 5

Abstract (Basic): SU 1432547 A

Circuit additionally includes group of junction models with inputs for inhibitor arcs contg. OR-gate, first and second O1D gates and NOT-gates.

Randomly, a junction is selected from all the solved junctions and the presence of blind markings of the analysed **Petri network** is determined depending on the established first marking beginning. When the dead-end situation is attained in the **Petri network**, the dead-end markings situations are stored in the models counters.

USE/ADVANTAGE - Computer engineering and for analysing **Petri networks** with inhibitor arcs. Functional capabilities are extended in the revised form of the Parent Cert. Bul.39/ 23.10.88.

0/1

Title Terms: PETRI; NETWORK; ANALYSE; CIRCUIT; ADD; GROUP; JUNCTION; MODEL; INPUT; CONNECT; SIMPLE; INHIBIT; ARC

Derwent Class: T01

International Patent Class (Additional): G06F-015/20

File Segment: EPI

14/5/35 (Item 20 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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007744216 **Image available**

WPI Acc No: 1989-009328/198902

XRPX Acc No: N89-007134

Structured data processor system - uses method of composing at high abstract language level set of instructions for executing program by use of Petri net diagram

Patent Assignee: HITACHI LTD (HITA)

Inventor: OTSUKI S

Number of Countries: 003 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 298206	A	19890111	EP 88105816	A	19880412	198902 B
US 5029080	A	19910702	US 88181586	A	19880414	199129
EP 298206	B1	19950222	EP 88105816	A	19880412	199512
DE 3853105	G	19950330	DE 3853105	A	19880412	199518
			EP 88105816	A	19880412	

Priority Applications (No Type Date): JP 8794580 A 19870417

Cited Patents: 4.Jnl.Ref; A3...9101; No-SR.Pub; US 4149240

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 298206 A E 27

Designated States (Regional): DE GB

EP 298206 B1 E 28 G06F-009/44

Designated States (Regional): DE GB

DE 3853105 G G06F-009/44 Based on patent EP 298206

Abstract (Basic): EP 298206 A

A set of instructions is composed using a Petri net diagram directed to structured data of one or more Cartesian product, direct union and sequence. The required data paths are provided according to the Petri net diagram in which the paths are defined by a data type which defines the data to be processed.

A work mode (W) is coupled at its input to a data path for taking data from the path and performing a required calculation on the data. The result of the calculation is output at the output port of the work node. The data type which defines the data on the path at the output of the node is restricted by the calculation function of the respective work node.

ADVANTAGE - High performance is achieved in parallel processing of instructions.

2/7

Title Terms: STRUCTURE; DATA; PROCESSOR; SYSTEM; METHOD; COMPOSE; HIGH; ABSTRACT; LANGUAGE; LEVEL; SET; INSTRUCTION; EXECUTE; PROGRAM; PETRI; NET ; DIAGRAM

Derwent Class: T01

International Patent Class (Additional): G06F-009/44 ; G06F-015/82

File Segment: EPI

14/5/36 (Item 21 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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004457726

WPI Acc No: 1985-284604/198546

XRPX Acc No: N85-212157

Function simulation method for asynchronous parallel operated system - defining structure of input and output data in table and sequentially removing tokens according to predetermined program

Patent Assignee: HITACHI LTD (HITA)

Inventor: HAYASHI T; MORI K; NAKANO T; NOGI K
Number of Countries: 004 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 160944.	A	19851113	EP 85105412	A	19850503	198546	B
US 4866605	A	19890912	US 88172980	A	19880322	198946	
EP 160944	B1	19920729	EP 85105412	A	19850503	199231	
DE 3586405	G	19920903	DE 3586405	A	19850503	199237	
			EP 85105412	A	19850503		

Priority Applications (No Type Date): JP 8492870 A 19840511

Cited Patents: 2.Jnl.Ref; A3...8811; No-SR.Pub

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 160944 A E 36

Designated States (Regional): DE FR GB

EP 160944 B1 E 25 G06F-015/60

Designated States (Regional): DE FR GB

DE 3586405 G G06F-015/60 Based on patent EP 160944

Abstract (Basic): EP 160944 A

A target system is divided into a number of asynchronously operable processes. A whole structure table is prepared using both a function which is to be transferred from one to another of the divided processes, and its input and output data. A system structure table is stored with a **petri net** model composed of transitions, tokens which are a set of data structures, the conditions for removing the tokens and the positions on the system where the tokens stand by.

The structure of the input and output data are defined for storage in a data structure table and the tokens are sequentially removed in accordance with a predetermined simulation program to trace the processes. Function simulation of the distributed system is conducted while comprehending by the data structure table the data structure change in the processings accompanying the tracing step.

ADVANTAGE - Disclosed data transforming procedures which are crucial in simulation of functions.

4/17

Title Terms: FUNCTION; SIMULATE; METHOD; ASYNCHRONOUS; PARALLEL; OPERATE; SYSTEM; DEFINE; STRUCTURE; INPUT; OUTPUT; DATA; TABLE; SEQUENCE; REMOVE; TOKEN; ACCORD; PREDETERMINED; PROGRAM

Derwent Class: S01; T01

International Patent Class (Main): G06F-015/60

File Segment: EPI

14/5/37 (Item 22 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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004288038

WPI Acc No: 1985-114916/198519

XRPX Acc No: N85-086201

Alternative and majority-type network modelling unit - has control pulse shaper connected to topology shaper and-gate taken across NOT-gate to pulse counter

Patent Assignee: AS UKR POWER MODEL (AUPO-R)

Inventor: BARANOV A I; GOLOVANOVA O N; IVASILIEV V V

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
SU 1119024	A	19841015	SU 3602967	A	19830607	198519	B

Priority Applications (No Type Date): SU 3602967 A 19830607

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

SU 1119024 A 14

Abstract (Basic): SU 1119024 A

New circuit components are counters (10) in each branch model (1), AND-gate (20) and NOT-gate (24) in the topology former (2), pulse counter (27) and an additional stop signal generating circuit in control pulse former (3), which consists of a counter and an AND-gate.

The circuit operates by **alternating** two stages: branch length modelling and logic relationship modelling. Counters (10) are used to enter the numbers describing the relationship between branch models for different logic relationships - e.g. in the case of disjunction, counters (10) in the second two branch models would contain the number N-1 and in the case of disjunction - N-alpha, where alpha is the number of branches entering the initial node of those two branches. Counter (27) provides information about the length of optimum path from the initial to the end node of an **alternative** network (i.e. the critical path, allowing for any conjunctive relationships).

USE/ADVANTAGE - Ability to model **alternative** networks, i.e. those containing a wide range of logic relationships, including **disjunctive** and **conjunctive nodes** with standard outputs as well as with **alternative** and stochastic outputs, as well as majority networks, distinguishes the proposed model from its prototype, and extends the range of networks it can model to include a wide range of control and planning tasks and the design of majority-element computers.

Bul.38/15.10.84. (14pp Dwg.No.1/8)

Title Terms: **ALTERNATIVE**; MAJORITY; TYPE; NETWORK; MODEL; UNIT; CONTROL; PULSE; SHAPE; CONNECT; TOPOLOGICAL; SHAPE; AND-GATE; NOT-GATE; PULSE; COUNTER

Derwent Class: S01; T01

International Patent Class (Additional): **G06F-015/20**

File Segment: EPI

Set "Items" Description
S1 39200 PETRI()NET? OR PETRINET OR (PREDICATE OR TRANSITION)()NETS
OR EVENT()GRAPH()MODULE? OR MARKED()GRAPH? OR STOCHASTIC()EVE-
NT()GRAPH? OR EVENT()GRAPH?
S2 24371 (CONJUNCTIVE OR CONNECT? OR JOIN? OR UNITE?) (2N) (TREE? OR -
BRANCH? OR LEAF OR LEAVES OR DIRECTOR? OR NODE?)
S3 7101 (DISJUNCTIVE OR SEPARATE? OR DIVIDE? OR "NOT"() (CONNECT? OR
JOIN? OR UNITE?)) (2N) (TREE? OR BRANCH? OR LEAF OR LEAVES OR -
DIRECTOR? OR NODE?)
S4 10042466 MODIF? OR EDIT? OR REVIS? OR REVAMP? OR REWRIT? OR REWORK?
OR CHANG? OR ALTER?
S5 0 S1 (S) S2 (S) S3 (S) S4
S6 3783 S1 (S) S4
S7 0 S1 (S) S2 (S) S3
S8 6 S6 (S) S2
S9 0 S6 (S) S3
S10 16 S1 (S) S2
S11 1 S1 (S) S3
S12 17 S8 OR S10 OR S11
S13 17 S12 NOT PY>2000
S14 17 S13 NOT PD>20000623
S15 13 RD (unique items)
File 2:INSPEC 1969-2003/Nov W4
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File 6:NTIS 1964-2003/Nov W5
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File 92:IHS Intl.Stds.& Specs. 1999/Nov
(c) 1999 Information Handling Services
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(c) 2003 Japan Science and Tech Corp (JST)
File 95:TEME-Technology & Management 1989-2003/Nov W3
(c) 2003 FIZ TECHNIK
File 99:Wilson Appl. Sci & Tech Abs 1983-2003/Oct
(c) 2003 The HW Wilson Co.
File 103:Energy SciTec 1974-2003/Nov B1
(c) 2003 Contains copyrighted material
File 144:Pascal 1973-2003/Nov W4
(c) 2003 INIST/CNRS
File 202:Info. Sci. & Tech. Abs. 1966-2003/Nov 17
(c) 2003 EBSCO Publishing
File 233:Internet & Personal Comp. Abs..1981-2003/Jul
(c) 2003, EBSCO Pub.
File 239:Mathsci 1940-2003/Jan
(c) 2003 American Mathematical Society
File 275:Gale Group Computer DB(TM) 1983-2003/Dec 03
(c) 2003 The Gale Group
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
(c) 1998 Inst for Sci Info
File 647:CMP Computer Fulltext 1988-2003/Nov W5
(c) 2003 CMP Media, LLC
File 674:Computer News Fulltext 1989-2003/Nov W4
(c) 2003 IDG Communications
File 696:DIALOG Telecom. Newsletters 1995-2003/Dec 03
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(c) 2003 Elsevier Science Ltd.
File 98:General Sci Abs/Full-Text 1984-2003/Oct

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File 266:FEDRIP 2003/Oct
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15/5,K/1 (Item 1 from file: 2)

DIALOG(R)File 2:INSPEC

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6857217 INSPEC Abstract Number: B2001-04-8110-004

Title: Coloured Petri-net models for topology analysis of power networks

Author(s): Lai Xiao-Ping; Zhou Hong-Xing

Author Affiliation: Shandong Univ., Weihai, China

Journal: Power System Technology vol.24, no.12 p.5-10

Publisher: Electr. Power Res. Inst,

Publication Date: Dec. 2000 Country of Publication: China

CODEN: DIJIES ISSN: 1000-3673

SICI: 1000-3673(200012)24:12L.5:CPMT;1-7

Material Identity Number: 0626-2000-013

Language: Chinese Document Type: Journal Paper (JP)

Treatment: Theoretical (T)

Abstract: This paper deals with power network topology analysis, makes a study on the dynamic properties of the realtime analysis process, and explores improved analysis algorithms. The topology analysis is decomposed into many units, each of which is modeled with a coloured Petri net, where a token represents a bus, and the token color represents the nodes connected to the bus. In the topology analysis based on these coloured Petri nets, whenever a certain breaker changes its state, only the buses containing the breaker's end-node(s) are recomputed. The coloured Petri nets explicitly model the discrete event dynamic process of the network topology varying with the states of breakers. The proposed topology analysis algorithm is much more effective than the traditional method. (8 Refs)

Subfile: B

Descriptors: busbars; circuit breakers; Petri nets; power systems; substations

Identifiers: power networks topology analysis; coloured Petri-net models; dynamic properties; realtime analysis process; analysis algorithms; token color; circuit breaker states; buses; discrete event dynamic process

Class Codes: B8110 (Power systems); B8375 (Substations); B0250 (Combinatorial mathematics); B8370 (Switchgear)

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...Abstract: algorithms. The topology analysis is decomposed into many units, each of which is modeled with a coloured Petri net, where a token represents a bus, and the token color represents the nodes connected to the bus. In the topology analysis based on these coloured Petri nets, whenever a certain breaker changes its state, only the buses containing the breaker's end-node(s) are recomputed. The coloured Petri nets explicitly model the discrete event dynamic process of the network topology varying with the states of breakers...

15/5,K/2 (Item 2 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2003 Institution of Electrical Engineers. All rts. reserv.

6720052 INSPEC Abstract Number: C2000-11-1230D-040

Title: Automating parallel implementation of neural learning algorithms

Author(s): Rana, O.F.

Author Affiliation: Dept. of Comput. Sci., Univ. of Wales, Cardiff, UK

Journal: International Journal of Neural Systems vol.10, no.3 p. 227-41

Publisher: World Scientific,

Publication Date: June 2000 Country of Publication: Singapore

CODEN: IJSZEG ISSN: 0129-0657

SICI: 0129-0657(200006)10:3L.227:APIN;1-1

Material Identity Number: N725-2000-005

Language: English Document Type: Journal Paper (JP)

Treatment: Theoretical (T); Experimental (X)

Abstract: A design scheme is described for translating a neural learning algorithm from inception to implementation on a parallel machine using PVM

or MPI' libraries, or onto programmable logic such as FPGAs. A designer must first describe the algorithm using a specialised neural language, from which a **Petri net** (PN) model is constructed automatically for verification, and building a performance model. The PN model can be used to study issues such as synchronisation points, resource sharing and concurrency within a learning rule. Specialised constructs are provided to enable a designer to express various aspects of a learning rule, such as the number and **connectivity** of neural **nodes**, the interconnection strategies, and information flows required by the learning algorithm. A scheduling and mapping strategy is then used to translate this PN model onto a multiprocessor template. We demonstrate our technique using a Kohonen and backpropagation learning rules, implemented on a loosely coupled workstation cluster, and a dedicated parallel machine, with PVM libraries. (32 Refs)

Subfile: C

Descriptors: backpropagation; multilayer perceptrons; neural net architecture; parallel machines; Petri nets; self-organising feature maps; synchronisation; unsupervised learning

Identifiers: neural network; multilayer perceptron; parallel machine; programmable logic; specialised neural language; Petri net; synchronisation; connectivity; Kohonen learning; backpropagation

Class Codes: C1230D (Neural nets); C5290 (Neural computing techniques); C1230L (Learning in AI); C5220P (Parallel architecture); C1160 (Combinatorial mathematics)

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...Abstract: as FPGAs. A designer must first describe the algorithm using a specialised neural language, from which a **Petri net** (PN) model is constructed automatically for verification, and building a performance model. The PN model can be...

...to enable a designer to express various aspects of a learning rule, such as the number and **connectivity** of neural **nodes**, the interconnection strategies, and information flows required by the learning algorithm. A scheduling and mapping strategy is...

15/5,K/3 (Item 3 from file: 2)

DIALOG(R)File 2:INSPEC

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6233341 INSPEC Abstract Number: C1999-06-6160B-017

Title: User-perceived availability and response-time in voting-based replicated systems: a case study

Author(s): Ing-Ray Chen; Ding-Chau Wang; Chih-Ping Chu

Author Affiliation: Dept. of Comput. Sci., Virginia Polytech. Inst. & State Univ., Blacksburg, VA, USA

Conference Title: Proceedings 1999 IEEE Symposium on Application-Specific Systems and Software Engineering and Technology. ASSET'99 (Cat. No.PR00122) p.103-10

Publisher: IEEE Comput. Soc, Los Alamitos, CA, USA

Publication Date: 1999 Country of Publication: USA xi+296 pp.

ISBN: 0 7695 0122 2 Material Identity Number: XX-1999-00944

U.S. Copyright Clearance Center Code: 0 7695 0122 2/99/\$10.00

Conference Title: Proceedings 1999 IEEE Symposium on Application-Specific Systems and Software Engineering and Technology. ASSET'99

Conference Sponsor: IEEE Comput. Soc.; Center for Application-Specific Syst. & Software Eng. (CASSE); UT-Dallas

Conference Date: 24-27 March 1999 Conference Location: Richardson, TX, USA

Language: English Document Type: Conference Paper (PA)

Treatment: Applications (A); Practical (P)

Abstract: In this paper, we develop a modeling method based on stochastic **Petri nets** (SPN) to allow user-perceived measures in voting-based replicated systems to be estimated. The merit of our approach is that user-arrival, maintenance, and node/link-failure or -repair processes are fully decoupled, thus allowing us to remove some unnecessary modelling

assumptions' and also keep track of states in which the system is unavailable to users from the user's perspective. We apply our method to contrast user-perceived availability and performance measures under dynamic and static voting algorithms in a 3- node , fully- connected network and discover that (a) for user-perceived availability, the conditions under which static voting is better than dynamic voting, or vice versa, are largely determined by the user workload; (b) for user-perceived response time, static voting is always better than dynamic voting. We give some physical interpretation of the analysis result. Our method is generic in nature and can be applied to analyzing other voting algorithms or network structures for replicated data management. (12 Refs)

Subfile: C

Descriptors: formal specification; performance evaluation; Petri nets; replicated databases; stochastic processes

Identifiers: user-perceived availability; response-time; voting-based replicated systems; stochastic Petri nets; node/link-failure; performance measures; voting algorithms; network structures; replicated data management

Class Codes: C6160B (Distributed databases); C6110F (Formal methods); C1140Z (Other topics in statistics); C5470 (Performance evaluation and testing)

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Abstract: In this paper, we develop a modeling method based on stochastic Petri nets (SPN) to allow user-perceived measures in voting-based replicated systems to be estimated. The merit of...

... to contrast user-perceived availability and performance measures under dynamic and static voting algorithms in a 3- node , fully- connected network and discover that (a) for user-perceived availability, the conditions under which static voting is better...

15/5,K/4 (Item 4 from file: 2)

DIALOG(R)File 2:INSPEC

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5643181 INSPEC Abstract Number: C9709-6110P-003

Title: A global approach for programming distributed multimicroprocessor systems

Author(s): Conde, D.; Gregorio, J.A.; Gonzalez Harbour, M.; Granda, M.

Author Affiliation: Cantabria Univ., Santander, Spain

Conference Title: Proceedings of the Eleventh IASTED International Conference Applied Informatics p.241-4

Editor(s): Hamza, M.H.

Publisher: IASTED, Anaheim, CA, USA

Publication Date: 1995 Country of Publication: USA 339 pp.

ISBN: 0 88986 175 7 Material Identity Number: XX95-01469

Conference Title: Proceedings of IASTED/ISMM Symposium on Applied Informatics

Conference Sponsor: IASTED; ISMM

Conference Date: 19-21 May 1993 Conference Location: Annecy, France

Language: English Document Type: Conference Paper (PA)

Treatment: Practical (P)

Abstract: We present a global approach for programming distributed multimicroprocessor systems. In this approach, applications are developed as a global parallel program that is independent of the particular hardware architecture, and is represented through an extended Petri net model. The building blocks for the global program are tasks that are implemented using standard programming languages. A highly automated tool is used to allocate the different tasks to processing nodes in a near-optimum way, minimizing message traffic in the interconnection network and balancing the execution workload in the different nodes . The tool divides the original extended Petri net into several subnets that are distributed among the different nodes. Tools are also provided to install, execute and monitor the program. (7 Refs)

Subfile: C

Descriptors: minimisation; multiprocessing systems; multiprocessor

interconnection networks; parallel programming; Petri nets; programming languages; resource allocation; software tools; system monitoring

Identifiers: distributed multimicroprocessor systems; global parallel program; extended Petri net model; programming languages; automated tool; minimization; message traffic; interconnection network; workload balancing; program monitoring

Class Codes: C6110P (Parallel programming); C5440 (Multiprocessing systems); C6150N (Distributed systems software); C1160 (Combinatorial mathematics); C6115 (Programming support)

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...Abstract: global parallel program that is independent of the particular hardware architecture, and is represented through an extended Petri net model. The building blocks for the global program are tasks that are implemented using standard programming languages...

... optimum way, minimizing message traffic in the interconnection network and balancing the execution workload in the different nodes. The tool divides the original extended Petri net into several subnets that are distributed among the different nodes. Tools are also provided to install, execute...

15/5,K/5 (Item 5 from file: 2)

DIALOG(R)File 2:INSPEC

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4868846 INSPEC Abstract Number: B9503-6250-010

Title: The effects of systems EMC on the connectivity of communication networks

Author(s): Zhu Xi; Dai Jingfeng

Author Affiliation: Nanjing Res. Inst. of Electron. Eng., China
p.186-9

Publisher: IEEE, New York, NY, USA

Publication Date: 1994 Country of Publication: USA xi+514 pp.

ISBN: 0 7803 1398 4

U.S. Copyright Clearance Center Code: 0 7803 1398 4/94/0000-0033\$4.00

Conference Title: Proceedings of IEEE Symposium on Electromagnetic Compatibility

Conference Date: 22-26 Aug. 1994 Conference Location: Chicago, IL, USA

Language: English Document Type: Conference Paper (PA)

Treatment: Theoretical (T)

Abstract: In the paper, a mathematical model of a communication network is established by using a colored Petri net (CPN). An approach is proposed to determine the connectivities of communication edge trails connecting a node according to its equipment and the EMC environment. The connectivity of the communication system is analyzed on the basis of a CPN. The paper builds a foundation for the simulation of a communication system in which nodes are arbitrarily distributed. (3 Refs)

Subfile: B

Descriptors: electromagnetic compatibility; Petri nets; radio networks; radiofrequency interference

Identifiers: EMC; connectivity; communication networks; colored Petri net ; communication edge trails; nodes

Class Codes: B6250 (Radio links and equipment); B5230 (Electromagnetic compatibility and interference); B6150 (Communication system theory); B0250 (Combinatorial mathematics)

Copyright 1995, IEE

Abstract: In the paper, a mathematical model of a communication network is established by using a colored Petri net (CPN). An approach is proposed to determine the connectivities of communication edge trails connecting a node according to its equipment and the EMC environment. The connectivity of the communication system is analyzed on...

15/5,K/6 (Item 6 from file: 2)

4672145 INSPEC Abstract Number: C9406-1290-030

Title: On generating variable structure architectures for decision-making systems

Author(s): Demael, J.J.; Levis, A.H. .

Author Affiliation: CNET, Issy-les-Moulineaux, France

Journal: Information and Decision Technologies vol.19, no.4 p. 233-55

Publication Date: 1994 Country of Publication: Netherlands

CODEN: IDTEEI ISSN: 0923-0408

U.S. Copyright Clearance Center Code: 0923-0408/94/\$07.00

Language: English Document Type: Journal Paper (JP)

Treatment: Theoretical (T)

Abstract: A quantitative approach for modeling a class of variable structure decision-making systems and for generating algorithmically alternative architectures is presented. These systems, whether they are human organizations or decision-making and information processing systems, consist of inter-connections of intelligent nodes ; the interactions between the nodes can change depending on the task bring processed. Colored Petri Nets are used as the mathematical framework for representing design requirements and for modeling the variable structures. An algorithm is presented for generating the complete set of variable structures that satisfy both some generic structural constraints as well as problem-specific design requirements. The model and the algorithm yield some insights on the properties of these systems and the information required for their coordination for distributed decision-making. An application to a non-trivial example for an Airport Surface Traffic Control System is presented. (13 Refs)

Subfile: C

Descriptors: decision theory; graph colouring; Petri nets; variable structure systems

Identifiers: variable structure architectures; decision-making systems; quantitative approach; human organizations; information processing systems; intelligent nodes; colored Petri nets; design requirements; Airport Surface Traffic Control System

Class Codes: C1290 (Applications of systems theory); C1140E (Game theory); C1160 (Combinatorial mathematics)

Abstract: A quantitative approach for modeling a class of variable structure decision-making systems and for generating algorithmically alternative architectures is presented. These systems, whether they are human organizations or decision-making and information processing systems, consist of inter-connections of intelligent nodes ; the interactions between the nodes can change depending on the task bring processed. Colored Petri Nets are used as the mathematical framework for representing design requirements and for modeling the variable structures.

An...

15/5,K/7 (Item 7 from file: 2)

03540235 INSPEC Abstract Number: B90006264

Title: Enumeration of k-trees and their application to the reliability evaluation of communication networks

Author(s): Mandaltsis, D.; Kontoleon, J.M.

Author Affiliation: Dept. of Electr. Eng., Thessaloniki Univ., Greece

Journal: Microelectronics and Reliability vol.29, no.5 p.733-5

Publication Date: 1989 Country of Publication: UK

CODEN: MCRLAS ISSN: 0026-2714

U.S. Copyright Clearance Center Code: 0026-2714/89/\$3.00+.00

Language: English Document Type: Journal Paper (JP)

Treatment: Theoretical (T)

Abstract: A method is proposed for the enumeration of all the k-trees in

a network, and a new algorithm is introduced which used the k-trees for evaluating the k% reliability, i.e. the probability that at least k% of the network nodes are connected. This reliability measure is more general and gives the well known overall reliability as a special case. The proposed method evaluates this measure using the concepts of Petri nets
(5 Refs)

Subfile: B

Descriptors: Petri nets; probability; reliability theory;
telecommunication networks; trees (mathematics)

Identifiers: k-trees enumeration; connected nodes; reliability evaluation;
communication networks; probability; reliability measure; Petri nets

Class Codes: B0170N (Reliability); B6150 (Communication switching theory)
; B0240Z (Other and miscellaneous); B0250 (Combinatorial mathematics)

...Abstract: trees for evaluating the k% reliability, i.e. the probability that at least k% of the network nodes are connected. This reliability measure is more general and gives the well known overall reliability as a special case. The proposed method evaluates this measure using the concepts of Petri nets .

15/5,K/8 (Item 1 from file: 8)

DIALOG(R)File 8:EI Compendex(R)

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04053636 E.I. No: EIP95012539745

Title: Effects of systems EMC on the connectivity of communication networks

Author: Xi, Zhu; Jingfeng, Dai

Corporate Source: Nanjing Research Inst of Electronic Engineering,
Nanjing, China

Conference Title: Proceedings of the IEEE International Symposium on
Electromagnetic Compatibility

Conference Location: Chicago, IL, USA Conference Date:
19940822-19940826

E.I. Conference No.: 42257

Source: IEEE International Symposium on Electromagnetic Compatibility
1994. IEEE, Piscataway, NJ, USA, 94CH3347-2. p 186-189

Publication Year: 1994

CODEN: IISPDC ISSN: 0190-1494

Language: English

Document Type: CA; (Conference Article) Treatment: G; (General Review);
T; (Theoretical)

Journal Announcement: 9504W1

Abstract: In this paper, a mathematical model of a communication network is established by using Colored Petri Net (CPN). An approach is proposed to determine the connectivities of communication edge trails connecting a node according to its equipments and the EMC environment. And the connectivity of the communication system is analyzed on the basis of CPN. This paper builds a foundation for the simulation of a communication system in which nodes are arbitrarily distributed. (Author abstract) 3 Refs.

Descriptors: *Electromagnetic compatibility; Telecommunication networks;
Systems analysis; Electromagnetic wave interference; Petri nets;
Mathematical models; Describing functions

Identifiers: Connectivity; System level; Colored Petri net; Communication edge trails

Classification Codes:

711.1 (Electromagnetic Waves in Different Media); 716.1 (Information & Communication Theory); 722.3 (Data Communication, Equipment & Techniques);
921.4 (Combinatorial Mathematics, Includes Graph Theory, Set Theory)

711 (Electromagnetic Waves); 716 (Radar, Radio & TV Electronic Equipment); 722 (Computer Hardware); 921 (Applied Mathematics)

71 (ELECTRONICS & COMMUNICATIONS); 72 (COMPUTERS & DATA PROCESSING); 92
(ENGINEERING MATHEMATICS)

Abstract: In this paper, a mathematical model of a communication network

is established by using Colored Petri Net (CPN). An approach is proposed to determine the connectivities of communication edge trails connecting a node according to its equipments and the EMC environment. And the connectivity of the communication system is analyzed...

15/5,K/9 (Item 1 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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04015434 Genuine Article#: QY637 Number of References: 15

Title: USING A FORMAL LANGUAGE TO SUPPORT NATURAL-LANGUAGE IN ACCIDENT REPORTS

Author(s): JOHNSON CW; MCCARTHY JC; WRIGHT PC

Corporate Source: UNIV GLASGOW,DEPT COMP SCI/GLASGOW G12
8QQ/LANARK/SCOTLAND/; UNIV COLL CORK,DEPT APPL PSYCHOL/CORK//IRELAND/;
UNIV YORK,BRITISH AEROSP PLC,CTR DEPENDABLE COMP SYST/HESLINGTON YO1
5DD/YORKS/ENGLAND/

Journal: ERGONOMICS, 1995, V38, N6 (JUN), P1264-1282

ISSN: 0014-0139

Language: ENGLISH Document Type: ARTICLE

Geographic Location: SCOTLAND; IRELAND; ENGLAND

Subfile: SocSearch; SciSearch; CC ENGI--Current Contents, Engineering, Technology & Applied Sciences; CC SOCS--Current Contents, Social & Behavioral Sciences

Journal Subject Category: ERGONOMICS

Abstract: Accident reports written by official bodies, such as the Air Accident Investigation Branch of the United Kingdom's Department of Transport, are produced in response to all major civil aircraft accidents or incidents. There are many statutory, legal and commercial implications that rest on the analysis, conclusions and recommendations that these reports contain. Air accident reports usually follow a standard format of synopsis followed by factual information, including history of flight and the systems involved, followed by analysis and conclusions. Finally, there are safety recommendations aimed at preventing a recurrence of the accident. Natural language is the primary means of communicating all of these findings. In requirements engineering there is an increasing recognition that natural language is not always an adequate means of expressing some of the detailed reasoning associated with the causal analysis of complex systems. Recent work in software engineering has explored the use of formal, mathematically based, techniques to help to gain the required level of clarity and precision. It is argued that accident reports, like requirements documents, could benefit by the use of formal techniques to complement the usual natural language descriptions. In this paper one specific accident report is considered. The limitations of its natural language descriptions are examined and the use of a Petri Net notation to help to elucidate its ambiguities is explored.

Descriptors--Author Keywords: SAFETY CRITICAL SYSTEMS ; PETRI NETS ; ACCIDENT REPORTS ; NATURAL LANGUAGE

Identifiers--KeyWords Plus: PETRI NETS

Research Fronts: 93-0480 001 (SOFTWARE METRICS; OPTIMAL MODULE SIZE OF OBJECT-ORIENTED PROGRAMS; LOGICAL SYSTEM SPECIFICATION)

Cited References:

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PETERSON JL, 1977, V9, P223, ACM COMPUT SURV
VANBILJON WR, 1988, V28, P437, INT J MAN MACH STUD

Abstract: Accident reports written by official bodies, such as the Air Accident Investigation **Branch** of the **United** Kingdom's Department of Transport, are produced in response to all major civil aircraft accidents or incidents...
...report is considered. The limitations of its natural language descriptions are examined and the use of a **Petri Net** notation to help to elucidate its ambiguities is explored.

15/5,K/10 (Item 1 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online
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933415 ORDER NO: AAD86-24052

SPECIFICATION AND EVALUATION OF REUSABLE SOFTWARE (METRICS)

Author: DHAMA, HARPAL S.

Degree: PH.D.

Year: 1987

Corporate Source/Institution: BOSTON UNIVERSITY (0017)

Source: VOLUME 47/07-B OF DISSERTATION ABSTRACTS INTERNATIONAL.

PAGE 2995. 181 PAGES

Descriptors: COMPUTER SCIENCE

Descriptor Codes: 0984

The motivation for this research has been the ever increasing cost of software production. A solution to this problem is developed by the creation of reusable Logical Software Units (LSUs). Conceptually, a LSU is a standard, off-the-shelf software package implementing a single function or several variations of the same function.

This dissertation addresses two problems associated with the use of LSUs: (1) How to denote the functional specifications at various levels of abstraction? The specification method should be able to show parallelism, points of conflict and guard against incompleteness. (2) How to evaluate the reusable software components and the software resulting from the integration of these components?

To address the first problem, a hierarchical, **Petri net** based, pictorial method, called the Net Method, has been developed. It has only five primitive constructs embodying two types of nodes, "entity" and "activity" nodes. These nodes are connected by three types of connectors, "lifeline connectors", "activity connectors", and "choice connectors". The Net Method can also be used for specifying conventional software.

The use of the Net Method has been illustrated by doing numerous examples. Based on the experience of applying the Net Method, it has been found that the five primitives are adequate for expressing specifications at both high and low levels of detail.

The second problem has been addressed by evaluating the PASCAL implementation of LSUs keeping in mind that software resulting from the integration of LSUs will be highly modular. For this type of software, the two qualities that are considered more relevant and important than others are Cohesion and Coupling. In this research, quantitative metrics have been developed for these two qualities. In evaluating Cohesion, the software characteristics taken into account are: software functionality, data-flow, action bundling and data bundling. In evaluating Coupling, flexibility and complexity of the interface has been calculated. The developed formulas have been applied to obtain numerical values for the two qualities.

The developed quantitative metrics could be employed by users in selecting LSUs manufactured by various vendors. The quantitative measures can also be used to evaluate conventional software as it is known today.

...and the software resulting from the integration of these components?

To address the first problem, a hierarchical, **Petri net** based,

- pictorial method, called the Net Method, has been developed. It has only five primitive constructs embodying two types of nodes, "entity" and "activity" nodes. These nodes are connected by three types of connectors, "lifeline connectors", "activity connectors", and "choice connectors". The Net Method can also...

15/5,K/11 (Item 1 from file: 144)

DIALOG(R)File 144:Pascal

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11639946 PASCAL No.: 94-0491964

**Referenzmodell zur Strukturierung von Leitsystemen
(Reference model for complex control systems)**

ERDMANN L; SCHNIEDER E; SCHIELKE A G

Tech. Univ. Braunschweig, Inst. Regelungs- Automatisierungstech., 38023
Braunschweig, Federal Republic of Germany

Journal: Automatisierungstechnik, 1994, 42 (5) 187-197

ISSN: 0178-2312 CODEN: ATRTE9 Availability: INIST-5075;

354000045569090010

No. of Refs.: 15 ref.

Document Type: P (Serial) ; A (Analytic)

Country of Publication: Federal Republic of Germany

Language: German Summary Language: English

Severious barriers of terminology become obvious, if individual complex control systems of different technical branches shall be connected . Based on a model of mental decision making, on a general axiomatization of systems and based on a description by means of Petri nets a general reference model for complex control systems will be established. It contains the four operative, tactical, dispositive (operations planning) and strategical level. Concerning the principles of system decomposition as hierarchization, differentiating and aggregation and by use of different parameters, control systems can be structures in a comparable manner. Hence, by means of a modular basic control unit a homogeneous frame exists to structurize individual control systems in a convenient way

English Descriptors: Control system; Modeling; Reference model;
Structuration; Decomposition

French Descriptors: Systeme commande; Modelisation; Modele reference;
Structuration; Decomposition

Classification Codes: 001D02D05

Severious barriers of terminology become obvious, if individual complex control systems of different technical branches shall be connected . Based on a model of mental decision making, on a general axiomatization of systems and based on a description by means of Petri nets a general reference model for complex control systems will be established. It contains the four operative, tactical...

15/5,K/12 (Item 1 from file: 275)

DIALOG(R)File 275:Gale Group Computer DB(TM)

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01227044 SUPPLIER NUMBER: 07196948

Mac-based tool brings drawing power to MS-DOS. (Software Review) (Meta Software's Design drawing package) (evaluation)

Pappas, Frank

IEEE Software, v5, n6, p99(1)

Nov, 1988

DOCUMENT TYPE: evaluation ISSN: 0740-7459

LANGUAGE: ENGLISH

RECORD TYPE: ABSTRACT

ABSTRACT: The Design drawing package from Meta Software for Apple Computer

Inc's Macintosh is now available for MSDOS-based PCs. The \$350 program is intended for organizing, analyzing and understanding complex systems. It serves as a computer-aided software engineering tool, as an outline processor, as a **petri - net editor**, or as a source-code flowcharting tool. Users work with five kinds of objects: pages, **nodes**, **connectors**, regions and text. The objects are related logically and graphically to diagrams made up of pages constructed from the other four objects. Movement between a parent page and its children is accomplished easily through development of a hierarchy of pages. Several graphical and hypertext methods are available. Design lacks some features of a full-fledged CASE system, but is better than many other such packages for MSDOS machines.

COMPANY NAMES: Meta Software--Products

DESCRIPTORS: Application Development Software; Computer-Aided Software Engineering; Evaluation; Software Design; MS-DOS

SIC CODES: 7372 Prepackaged software

TRADE NAMES: Design (Program development software)--evaluation

OPERATING PLATFORM: MSDOS

FILE SEGMENT: AI File 88

...ABSTRACT: complex systems. It serves as a computer-aided software engineering tool, as an outline processor, as a **petri - net editor**, or as a source-code flowcharting tool. Users work with five kinds of objects: **pages**, **nodes**, **connectors**, regions and text. The objects are related logically and graphically to diagrams made up of pages constructed...

15/5,K/13 (Item 1 from file: 647)

DIALOG(R)File 647:CMP Computer Fulltext

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01099379 CMP ACCESSION NUMBER: EET19960805S0109

Genetic programming evolves

R. Colin Johnson

ELECTRONIC ENGINEERING TIMES, 1996, n 913, PG37

PUBLICATION DATE: 960805

JOURNAL CODE: EET LANGUAGE: English

RECORD TYPE: Fulltext

SECTION HEADING: Technology

WORD COUNT: 1459

TEXT:

Stanford, Calif. - The inaugural Genetic Programming (GP) Conference, held last week at Stanford University, spotlighted recent successes in the automatic writing of computer programs. The conference compared automatically evolved programs to manually written ones, measured progress toward genetic programming's grand goals and addressed some of GP's limitations.

... The trick to using a GP on the directed graph representation is to start with a fully **connected** graph-every **node** **connected** to every other node- and gradually prune off unused parts by evolving guards that effectively eliminate access to unused portions. The authors suggested **Petri nets** as the best candidates for the directed graph type.

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